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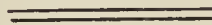
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The American Food Journal

Index to Volume XVII

January—December, 1922



THE AMERICAN FOOD JOURNAL, Inc.
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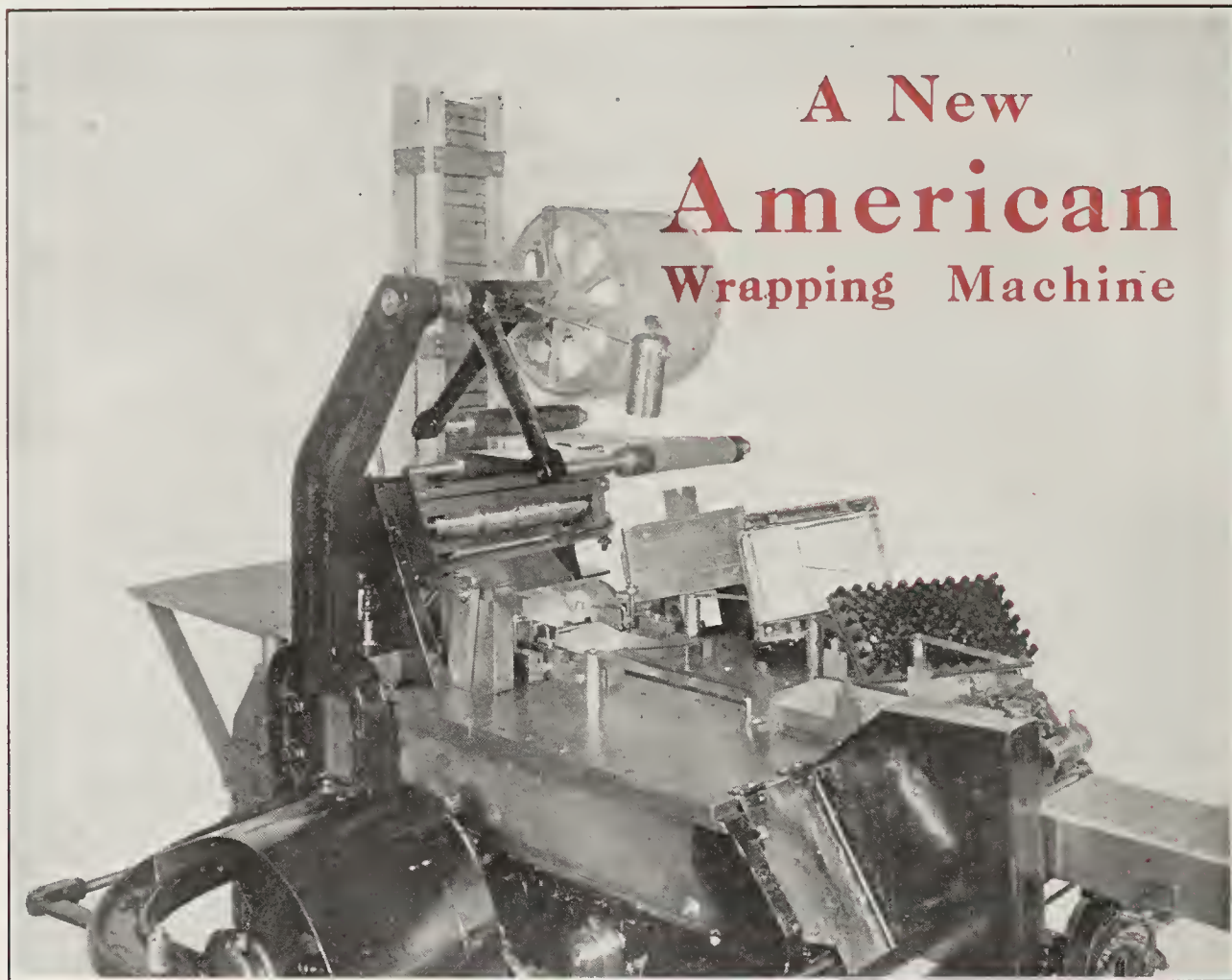
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What Leaders of Food Industry Think of 1922 Business Outlook.
Dehydration Developments in California, by Arthur W. Christie.
Do We Digest All Fats Equally Well, by J. J. Willaman.



This Machine Wraps 110 Packages A Minute

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Some Interesting Facts Regarding This Wonderful Machine

THE cartons are first wrapped in wax paper and then hermetically sealed by passing under a hot plate. This plate is shown in the illustration in the middle of three plates which are lifted off to show the operation of the machine. The first plate is merely a tension plate which holds the paper in place after it has been folded. The second plate, which in the cut contains a package, is the heater, showing how the heat is applied to both the top and the ends. The third plate is a brush which smooths out any irregularities insuring a perfect fold and seal.

YOU will notice that the machine is very accessible and that these top plates are very easily removed. You will also notice that there is but one working part above

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YOUR packing problem may require a similar machine. Our engineers are at your disposal to help you in solving any wrapping problem that may confront you. Stop at our factory, if possible, to see the machines of various types in operation, or mail us samples of the packages you may be interested in having wrapped. We will return your samples, wrapped as they would be when delivered by our machines, and will furnish you with suggestions and estimates for obtaining maximum results in wrapping your product.

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The American Machinery & Equipment Corp.
265 WASHINGTON AVE., NEWARK, N. J.

Volume XVII

The American Food Journal

Number 1

The National Magazine of the Food Trades

Established 1906

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The American Food Journal

The National Magazine of the Food Trades

Established 1906

Vol. XVII

JANUARY, 1922

No. 1

Fewer Violations of Food and Drugs Law

Only Small Portion of Food in Interstate Commerce Either Adulterated or Misbranded Shipment—Seizures and Prosecutions Decrease

“THE manufacturer who violates the Federal Food and Drugs Act today is an artist compared with the violator of a few years ago. He does not offend so frequently or so flagrantly, but he is harder to catch. The gross and crude violations so frequently found during the early days of the law's enforcement have given place to more subtle forms that, to be detected, require more careful investigation,” says the chief of the Bureau of Chemistry, United States Department of Agriculture, in his annual report. On the whole, violations are much less frequent. Only a small portion of the food and drugs in interstate or foreign commerce is either adulterated or misbranded.

In the enforcement of the Food and Drugs Act during the last year, the Bureau of Chemistry recommended the seizure of 1677 shipments and criminal prosecutions in 608 cases. The seizures and prosecutions recommended were based most frequently upon shipments of patent medicines including stock remedies, stock feeds, beverages, eggs, food

colors, fish and shellfish, salad oils, vinegars, artificial est and most prevalent of all adulterants, were the basis sweeteners and tomato products, but included a considerable number of other foodstuffs.

The activities of the year on patent medicines included food which were either harmful in themselves or contained deleterious impurities, such as arsenic, or were and fraudulent claims on the labels regarding curative mixed with large quantities of inert material having no powers for a great variety of diseases. The stock feed cases, coloring value. Tomato products required much attention, 152 in number, were based on products deficient in protein or otherwise failing to conform to the claims made rotten and decayed stock, or of adulterating with water or upon the labels.

Imitation fruit beverages sold under labels implying the presence of substantial quantities of fruit juice were encountered, but an increasing number of manufacturers have revised their labels to accord with the true composition of their products, or have actually incorporated fruit juice in their products, which were put on the market following the announcement that radium effected wonderful cures, threatened to develop to large proportions, but was stopped before it attained much momentum.

Vinegar was the basis of 90 actions under the law. It was necessary to continue the seizure of vinegar made from dried apple products bearing labels which represented it as manufactured from the pressed juice of fresh apples. Effective campaigns have been carried on to eliminate

This type of substitution has exerted a seriously demoralizing effect upon the trade in genuine apple cider vinegar, says the report.

Short Weighting

The short-weighting of tins of vegetable oil was one

of the most persistent and petty types of violation of the Food and Drugs Act encountered. There was found a widespread practice among the smaller packers of vegetable oils to put out packages showing a comparatively small but constant shortage from the quantity stated on the labels. In the long run this shortage results in an unfair but substantial profit to the packers at the expense of the consumers, says the report. These packers also persisted in adulterating olive oil with cheaper vegetable oils and in selling the cheaper product under labels implying that it was olive oil. Repeated actions have been brought in an endeavor to control this type of violation.

Oysters and scallops, adulterated with water, the cheap-



Rotten Eggs Seized Under Federal Food and Drugs Act
Destroyed by Order of the Court

So-called lithia waters containing only the merest traces of lithium, but alleged to be of the greatest therapeutic value because of their lithium content, have been virtually eliminated from the market. Interstate commerce in mineral waters and other drugs alleged to contain radium was stopped before it attained much momentum.

from interstate commerce shipments of milk and cream highly contaminated with bacteria. Some contaminated mineral springs have been closed, while in others the manner of handling the product and of purifying it have been revolutionized. Methods have been devised for the detection, by means of the microscope, of decomposed fruits and vegetables in prepared food products. Investigations have been made to establish as fully as possible the character of the practices necessary to protect consumers from food poisoning, and the information has been disseminated widely.

Create New Outlets for Farm Products

Since the improvement of methods for utilizing agricultural products is of vital importance not merely to the farmer, but to the whole country, says the report, it was decided in formulating the research policies of the Bureau of Chemistry to study the industries that utilize agricultural products, as well as to endeavor to create new, or enlarge existing outlets for such products.

Methods for making adhesives, cellulose, furfural, etc., from corn cobs have been worked out on a laboratory scale and have reached the semi-commercial development stage, as noted in an article in the December issue of *The American Food Journal*, "What the Bureau of Chemistry is Doing for Food Manufacturers," by W. G. Campbell, acting chief of that bureau. The indications are that an outlet will be provided for what has heretofore been a waste product. Studies have been made on the manufacture of starch from the white potato, the sweet potato and the grain sorghums. A process has been developed for the manufacture of a palatable sirup from the sweet potato, which, it is believed, will provide an outlet for the cull and surplus crop.

As the result of experimental work in the laboratory established by the Bureau of Chemistry at Los Angeles, California, methods have been developed for using most of the cull, frozen and surplus oranges and lemons which heretofore were largely wasted. Methods have been developed or improved for the manufacture of citric acid, citrate of lime, juices, marmalade, candied orange peel, essential oils and the like, from oranges and lemons unsuitable for the market as food.

Improved methods for the manufacture of silage from potatoes for use as cattle food have been devised. Better processes for pickling vegetables and making sauerkraut have resulted from studies on fermentation. These processes provide a means for preserving perishable products from the season of production to the season of scarcity.

Investigations have been made to develop better methods for the dehydration of fruits and vegetables. This is one of the most economical methods of preserving fruits and vegetables, especially in regard to shipping and storing. Certain fruits and vegetables when treated by the most efficient methods of dehydration and properly cooked are



Government Chemists Study Factory Operations to Aid Commerce

equal in appearance and taste, in the opinion of many, to the fresh fruits and vegetables.

Other important work includes the development of improved methods for the manufacture of cane sirup and of sugar from cane and beets; the study of proteins in various kinds of press cake to determine their efficiency as supplements to other foods in stock feeding; the improvement of methods of manufacturing tomato products, and the study of the feeding value of waste products of the farm and of the factory.

Develop Manufacturing Processes

Since chemistry plays an important part in many manufacturing processes, the Bureau of Chemistry has been authorized by Congress from time to time to study processes used in industries directly or indirectly related to agriculture. Studies are under way to improve methods of tanning and testing leather in order to develop longer lasting leathers and to produce leather better suited for specific purposes. Improvements have been made in methods for the manufacture of rosin and turpentine, as well as in the grading of these products. Questions relating to the manufacture of paper for specific purposes have received attention. Studies have been made of problems involved in the utilization of wool scouring wastes and in the water proofing of fabrics for farm use. Investigations were made of the manufacture of insecticides.

In the work on the manufacture of dyes, emphasis has been placed upon the study of the laws that govern the chemical reactions employed in the dye industry and the determination of the chemical and physical properties of the substances of importance in dye manufacture. As a result of these investigations many processes have been developed that are useful in aiding the maintenance of a dye industry within the United States.

Poindexter Bill to Punish Limitation of Food Supply

A bill to punish the storing of foodstuffs and other necessities of life so as to affect the market price or limit the supply thereof, has been introduced in the Senate by Senator Poindexter, of Washington. The bill provides that any person, other than a farmer or producer, or a co-operative association of farmers, growers, producers, carrying on or employed in interstate or foreign commerce in any article suitable for human food, fuel, or other like necessities, who either in his individual capacity or as an officer or employee of others, shall store, acquire, hold or destroy any such commodities for the purpose of limiting the supply, shall be deemed guilty of a felony and on conviction punished by a fine of not more than \$5,000 or imprisonment for not more than two years, or both such fine and imprisonment.



Experimental Milling Room of Bureau of Chemistry

What Leaders of Food Industry Think of 1922 Outlook

Normal Production, Price Stabilization and Return of Healthy Relationship Between Wholesale and Retail Values Predicted

WHAT does the year 1922 hold in store for the food trades?

Normal production, stabilization of money values, readjustment of the processes of production with demand and a return of a more healthy relationship between wholesale and retail prices—these are some of the conspicuous developments leaders of the food world believe will take place during the current year. There is an unmistakable trend on the up grade, according to these outstanding men of the industry, recently asked by The American Food Journal for their opinions on the business prospects for 1922. General business is undoubtedly better, they believe, liquidation has taken place in many branches of the industry, and while there will be, unquestionably, some hard sledding in the months to come for several branches of the food trades, the outlook on the whole is distinctly encouraging.

None of these representative business men deny that the past twelve months has been a particularly bad one for the industry. Several of them, moreover, weighing carefully economic conditions and developments, sound a warning that the coming year will not be a "bed of roses," and that those who are managing the affairs of the industry must be on a vigilant guard against the delusion of over-optimism.

Danger Signals to be Watched

The canning industry, they point out, for example, is still handicapped by small purchases of its product. It must solve the problem of railroad freight charges before it may be placed on a sound basis and is still awaiting expectantly more general deflation of values. The wholesale grocers, with low stocks and clean inventories, are similarly facing a crucial period and are also awaiting the more thorough stabilization of prices that should come during next twelvemonth.

Making up last year's losses in the number of factories, expanding limited markets, combatting the slack-filled package evil, raising the standards of manufacture within the various branches of the industry, formulating an all-round satisfactory tariff policy, are some of the tasks frankly recognized by the leaders of the food trades as essential in any thoroughgoing program for 1922.

There is no doubt, however, in the minds of all those replying to The American Food Journal's question, that the foundations have been laid during 1921 that should prove a solid footing during the new year for fresh gains and future progress. On the bright side of the slate, indeed, there is no dearth of predictions. "I have an unshaken confidence in an ever increasing prosperity," writes Fred Mason, President of the American Specialty Manufacturers' Association, strik-

ing the prevailing note of optimism running through the majority of the comments. "All the facts support that confidence—All the signs point to prosperity."

Quick Recovery from 1921 Depression

"Reviewing the past year and looking forward to the year to come, two fundamental facts stand out," says Mr. Mason. "They are: first, that 1921 has been a most difficult, trying and hazardous year for the specialty grocery industry—for manufacturer, wholesaler and retailer alike—a year of depression and peril; second, that 1922 manifestly promises substantial relief and sound progress toward better business conditions.

"It is certain that our industry has turned the corner of maximum depression and deflation and the movement is now steadily upward. It was the inevitable economic consequence of the post-war inflation that there should follow a market characterized by sharply declining prices and buying, by loss, demoralization and stagnation. It was essential in the interest of all concerned, hard as the experience was, that this readjustment be thoroughly effected, and the sooner the better. The experience of the past year has been most wholesome. It has laid a foundation upon which future prosperity may be firmly erected. The surprising fact is not the presence of deflation, but the almost complete absence of business mortality in our industry because of it. It hardly seems possible that our industry could uniformly endure the threatening and perilous storms through which it has passed during the past year without serious casualties. And the almost complete absence of such casualties stands out as an extraordinary tribute to the firm foundation and sound man-

agement of our industry as a whole. An industry that has safely ridden the storms of the past two years assuredly can and should face the future with ever increasing and justified confidence.

Consumer Demand Unimpaired

"It must not be forgotten that the consumer demand for food products remains and will remain unimpaired. The difficulties which have lately confronted the producers and distributors of foods do not qualify in the least that basic factor upon which the prosperity of our industry ultimately rests. Consequently, it is our plain duty as manufacturers now to revive and realize to the fullest extent the real and latent demand for our products. The future is in our own hands. We can make it what we will. It only remains for us to create good business, which we may do, to have it. And abundant sales, efficiently and profitably made, will

KEY OPINIONS ON PROSPECTS OF FOOD INDUSTRY

"I have an unshaken confidence in an ever increasing prosperity. All the facts support that confidence—all the signs point to prosperity."—FRED MASON, President, American Specialty Manufacturers' Association.

"General business conditions are certainly better. We must still acknowledge, however, that until deflation becomes more general, healthy and permanent conditions cannot possibly prevail."—H. P. STRASBAUGH, President, National Cannery Association.

"The packing industry shows a normal demand for its products, a super-normal export trade, low storage stocks and values stabilized at low levels."—THOMAS E. WILSON, President, Institute of American Meat Packers.

solve all other problems. In short, the duty before us is one of increased merchandising effort.

"To me it is utterly incomprehensible how anyone in our industry can look into 1922 with other than hope and anticipation. It is indisputable that we have endured the worst, that the future must bring something better. The question is not whether greater prosperity will come, but how soon, and how great will it be.

"All branches of the great food industry of this country—manufacturers, wholesalers and retailers—should endeavor in the new year to deal with one another in a kindly, generous, tolerant and fair spirit. Our interests are mutual and interdependent. We all can achieve maximum efficiency and success only by maximum harmony and efficiency of effort and relations. The American Specialty Manufacturers' Association extends to all its friends in the wholesale and retail grocery trade throughout the United States its very sincere and cordial wishes for a most successful and prosperous New Year, and pledges the best efforts of its members to effect that desired and certain result."

Meat Industry Faces Future Confidently

That the year 1922 will begin with normal packing house production, increases in exports and stabilization of meat values and that the future holds much in store for the packing industry, was the opinion recently expressed by Thomas E. Wilson, President of the Institute of American Meat Packers.

"All businesses," said Mr. Wilson, "may feel a good omen in the fact that the largest industry in the United States—slaughtering and meat packing—apparently has finished the year 1921 with a normal production and that this production has not been crammed into warehouses but has passed freely into trade channels and thence into consumption.

"A good augury for business in general also inheres in the fact that the nation's greatest industry, after two years of severe trials and grievous losses, is finally and definitely emerging into stable conditions and settling into a strong position. For further brisk expansion the packing industry, like all others, awaits to some extent an adjustment of the general economic situation and of world affairs. No business is independent of the common industrial situation or of international adjustments. We particularly need assurance of an adequate foreign outlet for our surplus pork production. This is essential both to the packer and to the live stock producer, as well as to general economic prosperity.

Foreign Situation Influences Home Conditions

"The situation existing abroad naturally is influencing conditions here in the United States. What we may expect from abroad will, to a very large extent be influenced by three or four basic problems that involve the whole world, such as the reasonable adjustment of the German reparation; some adjustment of national debts over a period of time sufficient to give the European countries an opportunity to work out the stopping in many of the Central European countries, of printing of paper money, that is not backed by gold or in some other substantial manner, and the adjustment of foreign exchange, which I think would result pretty much from the adjustment of the items mentioned above. I believe that the first thought all over the world is the crystallizing of these fundamentals, and I am hopeful that some plans tending to

the solution of some or all of these may develop out of the present disarmament conference in Washington.

"Here are some factors which the end of the year reveals in the present situation of the meat industry:

"1. Production during 1921 has been of normal dimensions, comparing favorably in quantity with annual production before the war.

"2. Packing house values, after tremendous declines, seem now to be stabilized, except for momentary fluctuations, at low levels.

"3. The demand has shown a good volume at the bargain wholesale prices for meats which have prevailed most of the year.

"4. Exports of meat products in 1921, judged by figures available for ten months, have been greater in quantity than during 1920 or during 1913, the last pre-war year.

"5. Sales of packing companies, in terms of pounds of product, during 1921 should approximate the quantity of sales last year; but, on account of lower prices, should show a heavy decrease in money volume.

"6. Storage stocks are relatively low, indicating that the demand has been sufficient to absorb current production.

"7. Meat and by-product prices during 1921 in many instances reached levels lower than those prevailing before the Great War started.

"8. The machinery of the packing industry has not ceased to turn. The output of this machinery has not always brought satisfactory prices, or even a profit, but it has been marketed. A normal volume of production has been maintained. The demand kept this production from piling up a surplus. Under such circumstances the future seems bright.

"Interesting official figures are available in support of the foregoing statements. In most cases, such statistics cover the first ten months of the year; the figures for November and December are not available yet. Even so, the trend of the year is sufficiently indicated.

Meat Exports Increase Eleven Per Cent

"Total exports of all meats for the first five-sixths of 1921 were 1,573,780,794 pounds, worth \$235,784,393, as compared with 1,402,127,038 pounds, worth \$338,952,366 in corresponding period of 1920—an increase of 11 per cent. in quantity and a decrease of 30 per cent. in value.

"Exports of meat products amounting to 1,573,780,794 pounds during ten months of 1921 compare interestingly with exports of 1,002,378,922 pounds in the same months of 1918. This comparison indicates that the export trade of the packing industry has been far from stagnant, even though the values realized have not been wholly satisfactory.

"Official figures on consumption of federally inspected meat during ten months indicate a meat consumption per capita during 1921 approximating that in 1920—perhaps a few pounds less. It is doubtful whether many other industries have seen consuming demand for their products so well maintained. I am sorry to say, however, that consumption per capita does not measure up to the figures prevailing farther back.

Normal Meat Production Can Be Maintained

"Since the packing industry is somewhat dependent on conditions in other industries, perhaps its experience is worth while as a sort of barometer. This experience shows that a normal production of staple commodities can be marketed

FROM THOSE WHO KNOW

"It is a safe assumption that if the latter part of the year 1920 and the year 1921 in general represented a period of liquidation in the business cycle, the latter months of 1921 and the opening of 1922 represent readjustment and a start back toward revival."—M. L. TOULME, Secretary, National Wholesale Grocers' Association.

"The wholesale grocer stands at the beginning of the new year with low stocks and inventories marked down. His position is in general on a sound basis. He has weathered the worst of the storm."—J. H. McCLAURIN, President, Southern Wholesale Grocers' Association.

"The outlook for 1922 in the preserving business is distinctly encouraging."—R. U. DELAPENHA, Vice-President, National Preservers' and Fruit Products Association.

in these times if the price is satisfactory to the purchasers.

"With respect to the packing industry individually, it shows a normal demand for its products, a super-normal export trade, low storage stocks and values stabilized at low levels after losses had been incurred from repeated market declines.

"Surely, such an industry can look forward confidently."

Wholesalers in Advantageous Position

The problems of the wholesale grocers during 1921 were particularly difficult, since they were the chief sufferers of the wholesale price decline. Opinions of two representative wholesale leaders, M. L. Toulme, secretary of the National Wholesale Grocers' Association, and J. H. McLaurin, president of the Southern Wholesale Grocers' Association—coincide in the belief that low stocks and marked-down inventories place the wholesalers in a peculiarly advantageous position at the outset of 1922.

Says Mr. McLaurin:

"The food industry of the country is a basic industry. All fluctuations occurring in it reflect directly the variation in the welfare of the people. Generally, also, these variations will apply directly to the great mass of the population comprised in the working classes and the farmers. In this regard, the food industry is a barometer of national welfare.

"The wholesale grocer has passed through two very difficult years, that of 1920 and that of the year that has just closed. Losses have been stupendous. Prices have declined with a rapidity and a range such as this country had never before known, but the grocery jobber is a conservative business man. He has taken his losses and he has adjusted himself to these trying conditions. There are strong reasons for him to be despondent and discouraged, but today at the beginning of a new year he still has faith and courage and confidence. The future looks brighter to him than the immediate past. He feels that the worst is behind him. There is good ground for this faith and confidence that is in him.

Bottom of Price Decline Reached

"Temporarily, at least, the bottom of the price decline was practically reached in July, 1921, for foodstuffs in general. The succeeding two months, August and September, showed a slight advance and since that time variations have been relatively small. Within the early months of 1922 it seems probable that some increase in price will be registered in certain commodities which he handles. While the process of deflation has not yet been completed because the whole price range must come down still farther and because the prices of various commodities are not in harmony, there is strong evidence of more stability in prices. A stable price is the only sure foundation of sound business.

Prices Must Fall, Say Consumers

"There is an insistent demand throughout the country by consumers for prices to fall. The manufacturer of foodstuffs and the distributor of foodstuffs cannot afford to turn a deaf ear to these demands.

"A number of jobbers from various parts of the country have reported a decrease in business during the last six months of 1921 below the first six months. The causes assigned to this decrease were generally two: a decline in

prices and a continued slump in business. Some distinct improvement was noted in the cotton section, due to the rise in prices at the beginning of September. Even there the last two months of 1921 witnessed a slight reaction. Price cutting has been general in the wholesale grocery business due to an anxiety to maintain volume of trade.

"Those jobbers who are selling to an agricultural market are practically unanimous in saying that business is not good. They contend that the farmers are being compelled to sell their products at prices lower than cost of production. In the tobacco growing region and in the oil producing districts business is good. Tobacco growers have apparently received fair prices for their products and oil has been a boom element wherever there has been activity. Mining regions generally have slumped, due to the inactivity of the mines. The striking exception here is in the anthracite coal region where the miners had probably never been so prosperous before. The cattle raising districts also are in a bad way. Jobbers in the manufacturing centers indicate that plants are running on short time, that pay-rolls have been cut and the purchasing power of the consumer reduced.

"There is considerable variation in the financial condition of various localities. It is reported in general, however, that there is plenty of money although the bankers are cautious in making loans. The reserves piling up in the banks and the apparent unlimited market for stocks and bonds show that there is ample money for investment. Collections on the whole are slow and difficult but in the majority of cases have been reported as good as could be expected under the circumstances.

Improvement for Grocery Jobbers Expected

"In spite of these facts the prospects for business in 1922 are on the whole considered better than in 1921. The consensus of opinion among grocery jobbers is that improvement will come but will come gradually. In the agricultural markets it is felt that no marked improvement will be seen until new crops have been grown and marketed. Reports from the industrial districts indicate that factories are being opened at the beginning of the new year and that activities in general are on the increase. This should mean larger pay-rolls, more money to spend among consumers, better business for the retailers,

larger orders for the jobbers.

"The wholesale grocer stands at the beginning of the new year with low stocks and inventories marked down. His position is in general on a sound basis. He has weathered the worst of the storm. Ahead of him lie calmer waters. The most important factor in the business of 1922 probably is a stabilized price, but there are also other encouraging factors. Taxation is no longer a disturbing guess but a reality. The Interstate Commerce Commission is reviewing the entire rate system of the country for the purpose of determining what reductions are possible. Workmen are ready and willing to produce more. Wage rates are down in many industries. The emergency tariff has been extended for another year. International conditions are showing evidence of improvement.

Confidence and this optimism will be strong psychological elements in aiding business. The consensus of opinion in the grocery jobbing trade is that while business

ON THE UPGRADE

"On the whole, the canning industry has completed its liquidation to a large extent and is on the upgrade. The year 1922 will doubtless witness some increase in canned foods production, providing the canners are financed."—**OGDEN S. SELLS**, President, Canning Machinery and Supplies Association.

"Things have reached the bottom and are now on the upgrade. Hard work and applied brains have a better opportunity than at any time during the past ten years to make a worth while success."—**FRANCIS E. KAMPER**, President, National Association of Retail Grocers.

"The macaroni industry has for some time been suffering from under-consumption, or over-production, and until such condition is eliminated will continue to suffer."—**B. F. HUESTIS**, Acting President, National Association of Macaroni Manufacturers.

is not well it is convalescing. 1922 business will be better than 1921 business."

Toulme Believes Prices Stabilized

Mr. Toulme believes, as stated originally in "The New York Evening Post," that the prices are stabilized by this time, in many instances showing signs of stiffening, and that costs of operation have been readjusted to an encouraging extent. "It is a safe assumption," he states, "that if the latter part of the year 1920 and the year 1921 in general represented a period of liquidation in the business cycle, the latter months of 1921 and the opening of 1922 represent readjustment and a start back towards revival."

Trade Antagonisms Aroused

"The intelligent policies adopted by the wholesale grocers during the deflation period," states Mr. Toulme, "have necessarily aroused antagonisms, and, in changing temporarily the ordered course of business, have aroused criticism—not from the consumer, however. The manufacturers and canners of food products in some instances levelled the accusing finger at the wholesale grocer. Because the wholesale grocer, as an expert distributor, realized that the consuming public was demanding lower and lower prices, and would not buy except at low prices, the wholesale grocer was accused of 'bearing' the market, despite the fact that it was apparent that the wholesale grocer, with his high-priced stocks on hand, was losing in the same ratio as a result of the falling off in buying demand. As a result, however, Government statistics show a thoroughgoing readjustment in food prices during the year."

"In the same way the retail grocer has, during the past year, come in for serious, but in many instances unjust, criticism. While it is true that the retail prices of food products have not come down as quickly or as sharply as wholesale prices, it is also true that during the war years, when food prices were on the upturn, retail prices did not rise as quickly or as sharply as the wholesale prices did. It is a historic fact that when prices are changing either up or down wholesale prices move first, and most rapidly, retail prices next, wages next, and rent last and least. This is not only true of the 1921 generation of retail and wholesale dealers, but of all lines of business in all periods."

The Packers' Consent Decree

"The opening of the year 1922 finds the food producing, manufacturing and distributing agencies greatly disturbed regarding the future competitive conditions in the food trades, brought into question by the plea of the packers for modification of the Consent Decree issued by the Department of Justice in 1921, barring forever the 'Big Five' from the production and distribution of general food products."

"What the Attorney General's decision is to be in the matter has not yet been determined. His decision, however, will be a matter of outstanding importance to producers and consumers, as well as manufacturers and distributors, of food products. It is the all-important issue in the food trades at the opening of 1922. It is weighted with the most serious social consequences, a probable centralization in the hands of a few of the control of the entire food supply of the country."

"Hard Work and Applied Brains" in Retail Business

The retail grocers of the country are also facing the year with enthusiasm and the confidence that with "hard work and applied brains," among other important ingredients, the year may be made a successful one.

"As we are waiting upon the threshold of 1922," writes Francis E. Kamper, secretary of the National Retail Grocers' Association, "many of us are quite as impatient as the expectant child for Santa to come, for never in the history of our generation have we experienced a year quite so full of uncertainties as 1921. Lots of us can gladly say 'good-bye, Old Boy, may I never see your shadow again.' It is an unpleasant recollection."

"If you are discontented with your lot, buy a ticket to New York City, go to Ellis Island, and there, you will see

enough in ten minutes to send you back home, singing and determined to be a better citizen."

"Millions of human beings, just as you and I, selling all home belongings, tearing themselves from father, mother, brother and sister in such numbers that we have to restrict drastically their coming, rushing from the whole of Europe to our land of promise. Can we honestly complain?"

"1922 is full of promise and will be just what we individually make of it."

"Hard work and applied brains now have a better opportunity than at any time during the past ten years to make a worth-while success. Sane living and not trying to keep up with the Jones' is a necessity and a blessing. Passing fancies and fads are the stumbling blocks to success. Easy money and easy jobs are millstones around our necks. The quality of service that grocers render will determine the volume of their permanent and profitable trade."

"Self respect and self reliance will make better grocers and is a cardinal business principal."

"1922 is ushered in at a psychological time. Surely, we have learned from the Washington Conference that the whole world is on a war strike, and we can appreciate what this means—the tremendous opportunities that will be given capital and labor to start much-needed improvements in all countries. We shall certainly want to do our part and will enthusiastically face 1922 with a smile and willingness to make it a better year. This will be the spirit that will win."

Canning Field Recognizes Danger Points

In the canning field, both Henry P. Strasbaugh, president of the National Canners' Association, and Ogden S. Sells, president of the Canning Machinery and Supplies Association, recognizes the danger points against which the canner and equipment manufacturer must alike be on wary guard. High freight rates, incomplete deflation, reduced purchases—these are developments that must be successfully met or prevented if the industry is to come out "on top" this year.

Says Mr. Strasbaugh:

"During the war period the canning industry packed without limit hoping that canned foods would help to win the war. Ever since the signing of the armistice, canned foods have been sold through regular channels and Government channels as well at from 30 to 40 per cent below cost and canned foods that have sold at cost or above cost since the memorable time that the armistice was signed, have been such an extreme exception that instances of this kind are almost undiscoverable."

"For this reason, the canner feels that he has experienced a bitter cup of deflation to an extreme. Unfortunately, however, the canner is, as a result, confronted with a heavy reduction of capital. In fact, the canner was always undercapitalized except in rare cases. The canning industry cannot expect a sudden reversal of conditions. Prosperity cannot come to the canner as a whole, nor can it be expected in the year 1922, for in addition to what has already been stated, the distributor has had enormous losses on account of the decline in sugar, canned foods, coffee, and other commodities. Therefore, his buying capacity is considerably reduced."

"Notwithstanding the existence of these deflation conditions at the present time with the canner and the distributor, freight rates have not been deflated to any great extent, and there is little indication of a reduction which will mean so much to the canner when it comes. Freight rates are pyramidal on ore, coal, coke, tin plate and empty cans, so that the canner cannot hope this year to reduce his cost to any extent below his cost in 1921. As long as this condition prevails, the canner will be open to unjust criticism and the general public will probably believe that the canner is making an enormous profit, when in all probability he is lucky to be breaking even."

Canning Conditions Better

"Of course, the unexpected sometimes happens. General business conditions are certainly better, but, notwithstanding the hopeful spirit which should by no means be quenched,

we must still acknowledge that until deflation becomes more general, healthy and permanent conditions cannot possibly prevail.

"We should all be optimistic and 'go-getters,' but when we are confronted with a stone wall, reinforced by the railroads of the country, we cannot very well jump the wall without landing on the other side with a number of broken bones. Competition will always bring about better trading conditions, but when we are confronted with the competition on one side and organization insurmountable on the other side, we find we are up against an oil and water mixture."

"The year 1922," says Ogden S. Sells, "will doubtless witness some increase in the canned goods production, providing the canners are financed. They are seriously handicapped at this time by the condition of the wholesale grocer and the small purchases he is finding it necessary to make."

"Unquestionably, many canners will find it impossible to operate unless they can secure additional capital. They must act as merchandise bankers and carry their packs to the day of consumption. With costs reducing, the public can expect cheaper canned foods, as the average canner is willing to operate practically on a cost basis through this reconstruction period. On the whole, I feel that the industry has completed its liquidation to a large extent and is on the upgrade."

Effect of Depression on Margarin Industry

J. S. Abbott, secretary of Institute of Margarin Manufacturers, has the following statement to make concerning the effect of the depression period on the margarin industry:

"The story of the effect upon the margarin industry of the industrial depression through which the country has been passing for several months is told by the tables of margarin production, exports and factories given below. As with most other manufactured products, the period of greatest production and exportation was during the year 1920. While the falling off was heavy for the year 1921, the production of oleomargarine was 136,000,000 pounds more than it was at any time before the war. The production during 1913, 1914, and 1915 was greater than at any earlier period."

"The production during each of the months since June 30, 1921, has been considerably less than during the corresponding months of 1920, but indications are that it will be nearly as great for the fiscal year 1922, as it was for 1921."

"The export situation is very much the same as that of production."

Number of Margarin Factories

Fiscal years	Number
1914	30
1920	73
1921	79

"At the end of the fiscal year 1921, there were only 71 factories operating. The other eight were temporarily or permanently shut down."

Margarin Production

Fiscal years	Pounds
1913	145,000,000
1914	144,000,000
1915	145,000,000
1920	391,000,000
1921	281,000,000

Margarin Exported

Fiscal years	Pounds
1913	2,477,000
1914	2,143,000
1915	3,112,000
1920	10,335,000
1921	3,494,000"

Believes Sugar Decontrol Encouraging Condition

Analyzing the sugar situation in this country, Earl D. Babst, president of the American Sugar Refining Company, believes that the decontrol recently effected in this industry, combined with other important factors, creates a distinctly encouraging condition for this industry.

"The whole United States sugar industry," Mr. Babst

states, "marched into Government control with a high patriotic purpose which will always stand to their credit. It was a real achievement. There was little thought then of the disastrous sequel."

"Therefore, when we, the largest sugar producing and consuming country in the world, decontrolled suddenly, without notice, on bare shelves, and without preparatory measures or steps—well, it is nothing short of a marvel that there is anything left of our magnificent sugar industry."

Learning by Experience

"Nations and men learn by experience, so let us set down a few fundamentals about the sugar situation which should be cheering, for we are now out of control and gradually finishing with decontrol. In our new wisdom there is encouragement on several points:

"1. That the household sugar of the United States—cane and beet—is the best in the world."

"2. That refiners, through years of experience, understand the requirements of the trade better than random traders."

"3. That sugar, like wheat, is often lost in the invisible supply—lost even to the statistician. It reappears, however, even after famine if the price is high enough."

"4. That the law of supply and demand is inexorable. Before it, peoples, courts, juries, buyers and sellers must yield."

"5. That our present difficulty is as much the result of over-buying as of over-anything-else."

"6. That the whole industry and the distributing trade is better off with a low price range."

"7. That the consumer, as always, is the final arbiter."

Return to Free Sugar Market a Good Sign

Commenting on the Cuban sugar situation, which is intimately bound up with that of the United States, Manuel E. Rionda, vice-president of the Czarnikow-Rionda Company, New York, and former member of the now abolished Cuban Sugar Finance Committee, believes that with the return of a free market, there is no reason for pessimism as to the future. Sugar has seen its worst, he declares, and the outlook is brighter than it has been some time. The return to individual control in Cuba will, in his judgment exert a certain tonic effect on the various factors of the Cuban sugar industry. The premium placed on individual initiative will be an incentive, he believes, to a determined effort to lift the production of sugar to a more efficient and economical level than ever before, and the best brains of the Cuban sugar industry will redouble their efforts to instill new life and vigor into the industry.

Preserving Business Promising

"The outlook for 1922 in the preserving business is distinctly encouraging, says R. U. Delapenha, vice-president of the National Preservers' and Fruit Products Association. Mr. Delapenha calls attention to the fact that at the end of 1920, manufacturers found themselves with large stocks of both finished products and raw materials, and for the first six months of 1921, a most chaotic condition existed, as the market and demand was limited and the pressure to sell was continuous."

"As was to be expected," writes Mr. Delapenha, "many of the weaker concerns were forced to retire from business, and the distribution of their stocks through the ordinary business channels made it harder for those manufacturers who were financially strong enough to stand the strain. Gradually, however, jams, jellies and preserves went into consumption at reduced prices, and in the autumn a healthier condition arose, where prices were advanced again to a more normal level, with a fair buying demand."

"During the whole of 1921, which will be known as a year of liquidation and inventories, consumption has continued, and stocks at the end of 1921 have been greatly reduced in the hands of manufacturers, and as wholesale grocers have been buying on a hand-to-mouth policy, their stocks are only large enough for their monthly requirements."

"It would appear then that the country at large has stood

the shock of reconstruction in this industry really better than was anticipated, and there should be no reason to believe that there will be any less jams, jellies or preserves consumed in 1922 than there was in 1921.

"Working on this hypothesis, if the same quantities are consumed at a reasonable profit instead of, in some cases, at serious losses, manufacturers should be well pleased at their showing at the end of the present year.

"If this condition exists in this industry, there must be many other industries that would compare with it in a like way.

"Many of us started 1921 with grave apprehension, but whilst sales have declined about 25 per cent, the actual volume or tonnage of merchandise sold, was greater than in 1920—which also proves that our people still have the ability to purchase at reasonable prices.

"We believe that 1922 should prove to be a profitable year for a well conducted business on conservative lines."

Macaroni Industry Suffering from Under-Consumption

The macaroni industry must combat the slack-filled package evil and generally raise the standards of the poorer manufacturer, if it is to pass through a prosperous period, states B. F. Huestis, acting president of the National Association of Macaroni Manufacturers.

"Generally speaking," says Mr. Huestis, "the macaroni industry is now, and has for some time, been suffering from under-consumption, or over-production, and until such condition is eliminated, will continue to suffer, in my opinion.

"For the last few years the business has increased in some proportion, although in not great enough volume to have made it necessary for the many new factories which have started up all over the country, many of which have already given up the ghost, but whose places will undoubtedly be filled by others seeking experience.

"Good business brought more factories and when the so-called buyers' strike went into effect, it brought out slack-filled packages and price demoralization. A reputable manufacturer obliged to maintain his organization was forced to compete with goods which had no standing as to quality, and to meet such conditions whether at loss or not. The slack-filled package, in my opinion, is directly responsible for the falling off in macaroni consumption, aided in great degree by goods manufactured from other ingredients than the semolina of hard wheat, which is the accepted standard. The slack-filled package was then abandoned, but consumption was at a low ebb and will need considerable nursing in the way of advertising and in the manufacture of quality goods always, to bring it back. It will come back, but only through the earnest efforts of quality manufacturers backed up by advertising of the highest grade.

"Macaroni as an article of sale by jobbers and retailers, is grossly misunderstood. Because the price of a single package of macaroni may be insignificant in itself, the grocer overlooks the fact that for every dollar's worth of macaroni he sells, he also sells two and one-half dollar's worth of his other goods. Advertising will show him that he is neglecting one of the very best articles in his entire stock, and if he buys a brand of goods upon which the manufacturer can put his guarantee of quality, in the form of a trademark recognized as meaning quality, he can rest assured he will develop a business in this unequalled food which will surprise him."

Typical Growers' Exchange Problems

According to T. C. Tucker, manager of the California Almond Growers' Exchange, all growers want "is a fighting chance in our own American markets against the foreign grower." To this end efforts are being made toward a higher protective tariff. Mr. Tucker comments:

"California almond growers face 1922 with two major battles in the perspective.

"The first battle—common heritage of all farmers' co-op-

erative organizations—is that never ending struggle against those who would wreck every agricultural co-operative by hook or crook for their own private, speculative profits, pretending in the doing of it that they are the farmers' friends.

"Our farmers' second battle is of specific concern to the almond growing industry in the State—the fight for a 5-cent and 15-cent tariff schedule, duties which will give our growers a chance to compete against the peasant growers of southern Europe.

"Our almond growers are muddling along the best they can, confident that Congress will sense the justness of their plea and the imperative necessity of adequate revision of the Fordney bill to a 5-cent and 15-cent basis if almond growing in California is to thrive. Our growers have presented their facts and figures showing that the schedule they ask will give them only a fighting chance in our own American markets against the foreign grower. We can only wait the issue. Meantime public opinion throughout the state must continue to make itself felt."

A laconic but encouraging word is received from J. O. Cheek, president of the National Coffee Roasters' Association:

"We have started in the New Year most hopefully. Business is very much better than one year ago."

Necessary Liquidation Soon, Says Herscher

An enthusiastic view of the business situation for 1922 is taken by J. W. Herscher, president of the National Wholesale Grocers' Association. Mr. Herscher believes that "constructive hard work and due regard for others" will go a long way in the solution of the crucial problems ahead of us:

"Old 1921, hoary with age, has finally succumbed. Oh, what a blessing to the wholesale grocer has been his demise, for with it there has been ushered into the world a new-born babe, happily smiling, and full of that optimism and hope which it is necessary that all those who call themselves food distributors must have to 'carry on' successfully.

"For, during the past twelve months, each succeeding day has had its trials and tribulations, has played its full part in battering into almost complete subjection, indomitable courage and the will to 'carry on.'

"After the losses sustained in the sugar catastrophe, which most of our calling bore bravely and which we thrust aside with hope for the future, there came upon us a declining market, as applied to heavy stocks, consequent losses and the inability to overcome them.

"Industrial conditions generally were bad, first in one section and then in another of our country, so that only through determination and perseverance could volume be kept up.

"The year has seemingly been one of Herculean tasks, undertaken by men already overburdened—men with the desire of maintaining satisfied organizations, and still having before them the necessity for economical operation—men, desirous of building business, but hesitating because of probable financial difficulties of those with whom they dealt and frightened by the seeming near approach of that specter which, sweeping across the country with its blazing sword, leaves in its path only ruin and failure.

"But hope is eternal. Price adjustments and readjustments have found for food commodities that which, if it is not, should be close to an average low level; old stocks are nearly dissipated and annual inventories, having been scrutinized and studied, will quickly bring necessary liquidation.

"And so, it is our belief that, through the exercise of thought and constructive hard work, a due regard for others, and the will to be enthusiastic and optimistic as regards the future, there should be no hesitancy upon the part of those on whom has fallen the duty of supplying food to the country, to set sail on the clear sea of 1922 with the full assurance that its end will bring them into the port of success."

Do We Digest All Fats Equally Well?

Government Investigations Show That All Are of Same Dietary Value in Respect to Amount of Energy Supplied to Body

Editor's Note.—Professor Willaman is a graduate of the University of Wisconsin (1912) and has been plant chemist at the Minnesota Agricultural Experiment Station since 1913. He obtained his Ph.D. at Chicago in 1919. Most of Dr. Willaman's investigations have concerned themselves with plants, and he has been especially interested in the chemical investigations of plant diseases. Recently, he has given considerable attention to sugars and their industrial sources. He is the author of "Vocational Chemistry" and several other contributions to scientific literature.

By J. J. WILLAMAN, Ph. D.

Department of Agriculture, University of Minnesota

ABOUT 30 per cent of our energy comes from fat. In the past, most of this fat has been of animal origin, as butter, lard, suet. Of late years a considerable number of new fats and oils have been added to our menus, as cocoanut oil, cottonseed oil, peanut oil—that is, oils of vegetable origin. A still further change in the trend of affairs has been the introduction of fats made to order by chemical means—that is, hydrogenated oils. Naturally we are a bit curious to know how all these and many others of the fat family behave in the body when used as food. We know from eating them that they must be fairly dependable, otherwise we should have experienced things to the contrary. But it does become of real importance to know accurately what their relative value is. We want to know how they compare in digestibility, and what the effect is of consuming them in large quantities.

Experiments by U. S. Department of Agriculture

In 1915 the Office of Home Economics of the U. S. Department of Agriculture inaugurated a long and careful series of experiments to answer these questions, and at the same time to answer a lot of other questions that are concerned with the dietary uses of fats. Nine papers to date have been published, containing the results of this work. The findings are of value to the food industry in general and are of interest to all consumers of food.

Simple meals were devised for the experiments, consisting of wheat biscuits, fruit (apples and oranges), and sugar. The fat under investigation was made into a blanc-mange so as to be easily eaten. Accurate record was kept of the amount of food eaten, and of the analyses of the food and of the feces. The amount of fat in the feces subtracted from the fat eaten, and this difference divided by the fat eaten, gave the percentage digested. A further correction was made for the small amount of fat in the other constituents of the food; hence the corrected value shows the actual digestibility of the experimental fat alone. The subjects ate the test meals three days running, at two different periods.

The summary of all the experiments is given in the table. The coefficients of digestibility of the protein and carbo-

hydrate of the diets is also given, so as to show any effect of the kind of fat on the utilization of these other constituents of the diet. The fats chosen for the experiments are not only those of considerable importance at the present time but also those that may become so, because of

economic reasons, and also a number of fats which are not eaten as separated fats but are constituents of food materials. Since the list now comprises some 60 different substances we have available a very inclusive and conclusive body of data by which to judge the relative worth of different food fats. If there is any conspicuous superiority of some fats over others, these data ought to show it. Let us see what facts the table does show.

Digestibility of all Fats High

In the first place, we can note in the last column that in general the digestibility of all fats is very high—from 92 to 97 per cent in the great majority of cases. In very few cases is it below 90, and in two instances, those of cohune oil and hickory-nut oil, it exceeded 99. The authors of these papers do not try to split hairs, however and consider a difference in digestibility of 3 or 4 per cent to be of no particular significance.

In the second place we note that the fats of lowest digestive coefficients are mutton suet, oleo stearin, avocado fruit and two of the hydrogenated oils. Now with the exception of the fruit, these are all rather hard fats; that is, they have high melting points.

It has long been believed by physiologists that such fats are less digestible than fats of lower melting points.

The present work, however, furnishes the first good chance to subject this theory to the test of actual figures. And the figures bear out the theory in a striking manner. If the melting points of the various natural fats are compared with their coefficients of digestibility, it will be found that the two are in the reverse order. The present workers went further than the natural fats; they took cottonseed, peanut and corn oils, and by hydrogenating them to different degrees they were able to get a series of fats of different melting points. These are shown in the last section of the table. There is a steady decrease in digestibility as the melting point becomes higher. It is significant, however, that even a fat melting at 52 degrees



J. J. Willaman

C., 15 degrees above the temperature of the body, still is digested to the extent of 79 per cent. There is apparently no danger of commercially hydrogenated fats ever having an impaired digestibility because of the hydrogenation process.

A third point brought out by the writers of these papers is that none of the oils examined appears to affect in any significant way the utilization of the other constituents of the diet, the proteins and carbohydrate especially. They consider the variations in digestive coefficients shown in the table to be of no consequence. It would seem that when the protein values drop to 50 per cent there must be some cause for it; but the present reviewer is simply accepting their interpretation of the data.

Another set of observations made during these experiments and not recorded in the table have to do with the possible laxative effects of the various fats. Of all the 60 odd fats examined, a laxative effect was produced only by mutton tallow, ox-marrow fat, Japanese-mustard oil, goose-fat, cupuassu fat, cocoa-butter in excess of 82 grams per day, and English walnut oil in excess of 80 grams. In no case was the laxative action anything but slight, and amounts of the various fats as high as 130 grams (4.7 ounces) per day were ingested. Cocoa butter was the only one that appeared to be toxic: the men eating it reported nausea, headaches, loss of appetite and ambition, and sleeplessness.

Taking it all in all, these experiments show that practically all edible fats are of equal dietary value, when considered from the standpoint of the energy available to the body. They further show that very liberal quantities of most of them can be eaten without any attendant physiological disturbances. It is hoped that such fundamental investigations as these will be continued by the Department of Agriculture, so that the food industry will be put on a sound scientific basis as soon as possible.

SUMMARY OF DIGESTION EXPERIMENTS WITH VARIOUS FATS AND OILS

Kind of Fat or Oil	Digestibility of entire		Digestibil-
	ration		ity of
	Protein	Fat	Carbohy- trial fat
	%	%	drate alone
	%		%
Packinghouse animal fats:			
Lard	75.0	93.7	95.8 97.3
Beef suet	75.6	88.9	96.7 93.1
Mutton suet	73.1	80.5	96.7 87.6
Brisket fat	58.4	92.8	96.4 97.4
Hard-palate fat	50.9	90.5	97.6 93.7
Horse fat (neck and leaf).....	60.4	93.7	96.3 93.9
Ox-marrow fat	59.2	91.2	97.4 93.5
Ox-tail fat	74.6	93.0	96.3 96.6
Oleo oil	52.8	90.4	96.0 96.8
Oleo stearin	40.5	71.8	94.7 80.1

Kind of Fat or Oil	Digestibility of entire		Digestibility of
	Protein	Fat	
	%	%	%
Miscellaneous animal fats:			
Butter	70.5	93.9	96.4
Cream	65.2	92.7	96.1
Chicken fat	68.3	93.4	96.9
Egg-yolk fat	81.6	91.5	96.2
Goose fat	68.5	91.2	96.5
Goat's butter	71.9	93.6	97.3
Kid fat	88.3	91.3	94.9
Boston mackerel (whole flesh)	92.7	95.4	96.1
Green-turtle fat	57.6	93.3	96.6
Vegetable fats:			
Olive oil	69.4	94.7	96.8
Cotton seed oil	67.8	94.9	96.6
Peanut oil	75.6	96.0	96.8
Sesame oil	61.4	93.8	96.5
Cocoa butter	64.5	89.6	96.4
Corn oil	63.0	93.5	97.3
Soy-bean oil	51.6	93.8	96.8
Sunflower-seed oil	76.9	93.8	97.3
Japanese mustard-seed oil	70.5	94.9	94.5
Rape-seed oil	80.4	95.7	94.8
Charlock, or wild mustard	74.0	94.6	96.7
Hemp-seed oil	67.1	94.4	97.0
Palm-kernel oil	61.0	95.3	96.9
Poppy-seed oil	49.1	91.3	96.5
Avocado fruit	85.9	90.0	97.0
Cupuassu fat	75.2	88.8	96.6
Cohune oil	63.5	94.6	95.8
Nut oils:			
Coconut oil	64.5	93.5	96.7
Almond oil	50.1	93.1	96.3
Black walnut oil	61.1	94.8	97.8
Brazil-nut oil	63.1	94.5	96.3
Butternut oil	59.8	88.7	97.0
English walnut oil	69.6	94.4	97.2
Hickory-nut oil	75.3	97.2	97.7
Pecan oil	65.9	93.9	97.2
By-product seed oils:			
Apricot-kernel oil	53.3	94.4	96.4
Cherry-kernel oil	79.9	94.3	97.6
Melon-seed oil (cantaloup)	72.2	94.8	97.7
Peach-kernel oil	83.7	91.8	95.6
Pumpkin-seed oil	62.8	95.0	96.9
Tomato-seed oil	63.5	90.3	96.6
Hydrogenated vegetable oils:			
Melting Point			
Cottonseed oil	35 C.	69.2	93.6
	38	69.5	92.7
	46	71.7	92.7
Peanut oil	37	69.1	95.0
	39	74.0	93.3
	43	73.8	93.5
Corn oil	50	68.6	88.1
	52	55.9	73.8
	33	72.0	91.7
	43	76.3	91.8
	50	69.6	83.2

Use of Fruit Products in Manufacture of Ice Cream

By William V. Cruess

THE use of fruits and fruit flavors in the manufacture of ice cream has been a subject of close interest to the Fruit Products Laboratory of the College of Agriculture, University of California and is still being investigated very carefully.

Large quantities of crushed berries are used for this purpose on the Pacific Coast. The process employed is to wash and stem the berries carefully and for each 100 pounds of berries a 100 pounds of sugar is added, and the berries and sugar are mixed in 50-gallon paraffined barrels. After the barrels are filled they are headed up and placed at once in cold storage at from 15 to 22 degrees F.

One difficulty experienced in cold storing berries is their tendency to ferment before the center of the barrel reaches the temperature of cold storage. One large concern, I am

told, pre-cools the fruit before it goes into the barrels and in this way fermentation is arrested immediately. I have been present at the opening of barrels of this product after six or eight months storage and have found it in very excellent condition. The sugar with the juice of the fruit forms a thick sirup, the flavor and color of the berries are retained very well, but the berries themselves sometimes shrivel slightly.

In experiments in our own laboratory we found that the fruit retains its shape more satisfactorily if held in a sirup at 32 degrees F. We found also that fruit sirups concentrated by freezing may be held in cold storage indefinitely and used in the flavoring of candy centers or in the flavoring of ice cream. This we believe to be the logical form in which to use the berries for certain products. Berries that are very rich in acid may be crushed and pressed and the juice sweetened to the desired point by the addition of sugar, no concentration by freezing or vacuum pan treatment being necessary. Grapes, however, advantage. The use of fruit products in the manufacture of ice cream has tremendous possibilities.

Dehydration Developments in California

New Drying Methods Playing Increasing Part in Marketing of Fruits and Vegetables—Great Economies in Transportation and Warehousing

Editor's Note.—Arthur W. Christie has been a member of the staff of the College of Agriculture and Experiment Station of the University of California since receiving his M. S. degree in 1916. For the past three years he has devoted his particular attention to the subject of dehydration. Perhaps no agricultural college in the United States has developed public service to a greater degree than the California institution, and much of Professor Christie's work has been carried on in active visiting, remodeling and improving the equipment and processes used in various plants and products.

By **ARTHUR W. CHRISTIE**

Assistant Professor, Fruit Products Laboratory, University of California, Berkeley, Cal.

CALIFORNIA'S fertile valleys and hillsides are rapidly becoming one great orchard and vineyard. The stimulus of better returns and the invaluable aid of extensive irrigation are transforming the vast fenceless grain fields and cattle ranges of former years into a land of trees and vines. The hundreds of thousands of acres of new orchards and vineyards planted in the past five years will easily double California's fruit production within the next five years.

To maintain fruit production profitably in spite of this greatly increased output necessitates the energetic development of all possible markets. It is doubtful if the demands of canneries and fresh fruit markets will increase as rapidly as the supply of fruit. It is entirely probable, therefore, that an increasing proportion of California fruits will be marketed in the dried form, a most logical form in which to spread the sale of fruit over the entire twelve months of the year.

Although sun-drying of fruits is a large and well established industry in California, it is apparent to all who have considered the matter seriously that dehydration offers a means of producing inexpensive dried fruits of new forms and in many cases of better quality than the usual sun-dried fruits.

If dehydration is destined to play a conspicuous part in the future marketing of California fruits, it is interesting to briefly consider its advantages and disadvantages, first, in relation to other methods of food preservation such as canning and refrigeration and secondly, in relation to sun-drying. Not only can dehydrated fruits be produced and sold at a lower price than an equivalent quantity of canned fruit but the great decrease in bulk and weight affects a tremendous saving in containers and transportation and warehouse charges.

Economies of Dehydration in Transportation

Since fruits and vegetables contain from 65 to 95 per cent water, it appears illogical to transport this water, not to mention the water added in canning, to distant markets. One ton of apples, canned and cased, weighs about 2,600 pounds while a ton of apples dehydrated and packed, weighs only 300 pounds, illustrating the great reduction in weight,

of special importance in California because of her distance from both American and foreign markets. Properly packed dehydrated products keep well for years and are not susceptible to the spoilage, sometimes poisonous in nature, occasionally occurring in canned and refrigerated foods.

Dehydration is an economical means of conserving and subsequently marketing the periodic over-supply of fresh fruits and vegetables which otherwise so often results in a loss to the grower. In short, dehydrated fruits and vegetables furnish materials for a properly balanced yet inexpensive diet wherever and whenever fresh products are unobtainable or expensive.

Despite the obvious inherent advantages in dehydrated products their sale is still very much restricted by certain unfortunate circumstances. Many persons are prejudiced against dehydrated products in general because they were first introduced to some of the improperly dried and packed materials, unattractive in color and flavor and often contaminated with worms, which appeared on the market just a few years ago. A number of dehydration companies, whose capital consisted more of optimism than of cash, asked exorbitant prices for mediocre products, reacting against their sale.

Cheaper than Fresh or Canned Foods

It must be borne in mind that although dehydrated products often cost more, pound for pound, than fresh or canned foods; when compared on an equivalent food value basis, the dried product is actually cheaper, not to mention the fact that there is no loss in preparation. Large consumers of food such as armies and navies, camps, ocean going vessels, bakeries, hotels, restaurants, etc., have already learned the value of dehydrated products, but retail markets are practically undeveloped. Retail trade exists largely in cities where housewives, occupied with business or social affairs, conduct their culinary campaigns in rapid fashion, using the delicatessen store as a base of supplies and the can-opener as their chief weapon. She objects to the planning and preparation of meals in advance. Preliminary experiments indicate the possibility of



Arthur W. Christie

"instantaneous" dehydrated fruits and vegetables by pre-cooking and drying in thin slices, thus largely eliminating the objectionable long soaking and cooking.

Rapid Development of Dehydration Since War.

Just as the wars of the last century stimulated the development of canning so did the recent war create a world-wide interest in dehydration. California also felt this call and supplied several million pounds of dehydrated vegetables during the war, the principal producer being E. Clemens Horst of San Francisco. Over 200 dehydrators have been built in California since 1918. These range from small one ton per day dryers to large modern plants of 50 to 75 tons capacity. Of special interest among these is the Caladero Products Company, Atascadero, in whose \$200,000 plant a variety of dehydrated fruits and vegetables is produced. This company has recently perfected and introduced an excellent pumpkin flour for pies. The Japanese farmers of Los Angeles erected the model plant of the California Evaporated Products Company, which produces a full line of excellent dehydrated vegetables. In 1920 the National Ice and Cold Storage Company erected at Gilroy and Santa Rosa, two of the largest and most modern dehydrating plants on the Pacific Coast, which have been used extensively for the custom dehydration of apples, grapes, prunes and pumpkins. Prohibition created an interest in dehydrated wine grapes which was short lived because of the fresh shipment of these grapes to Eastern markets at phenomenal prices.

The unusually early and heavy rains of September, 1918, which resulted in a loss of several million dollars worth of prunes and raisins caused all progressive growers to appreciate the value of dehydrators as insurance against rain damage. The excellent quality and low cost of production of dehydrated prunes have been so conclusively proven this season that many dehydrators for prunes are planned for 1922. Realizing the necessity for co-operation and standardization a number of the leading producers recently organized the Pacific Dehydrators' League of San Francisco. This organization is patterned after the very successful Canners' League of California and is endeavoring to further the sale of dehydrated products by standardizing and improving their quality.

Air-Blast Tunnel Superior

Many different types of variously termed dryers, evaporators and dehydrators have been tried in California. To describe all these, with their advantages and disadvantages, mostly the latter, would require a volume. Suffice it to say that the air-blast tunnel dehydrator has conclusively proved its superiority over all other types tried. This simple and efficient dehydrator consists of a long tunnel through which the fruit or vegetable carried on trays supported by cars is moved progressively while subjected to a steady flow of heated air, which is introduced at one end and removed at the other. This type is practically universal in its application and most flexible in its operation. Not only can the temperature, humidity and volume of air be varied over a wide range but, according to the demands of the product, it may be entered at either the highest or lowest temperature and moved progressively to the other extreme. The salient features of the tunnel dehydrator may be briefly enumerated as follows:

1. Suitable for all fruits and vegetables.
2. Rapid and uniform drying under continuous operation.
3. Simple and exact regulation.
4. Lowest cost of construction for capacity.
5. Most economical, both in operating and over-head costs.

Substantial fire-proof tunnel dehydrators, completely equipped with cars and trays have been built for \$500 per fresh ton capacity per 24 hours. This is exclusive of the equipment used in handling the material before or after drying. It has been amply demonstrated that many fruits can be dehydrated as cheaply as they can be sun-dried, while in inclement weather dehydration produces a better product at lower cost. A dehydrator effects further economy, in that with it only 5 to 10 per cent as much land and trays is required to dry a given tonnage.

Although sun-dried and dehydrated fruits are both preserved by removal of moisture, the manner of this removal directly affects the nature of the finished product. All sun-dried fruits undergo notable changes in color, flavor and texture as a result of their long exposure to the heat and light of the sun. These altered products through years of use have established a well defined demand in the trade. Proper dehydration, however, causes no change in color, flavor or texture except as is unavoidable in the shrinkage of the products and when the product is "refreshed" with water it is the replica of the cooked fresh fruit.

This is an age of sanitation. The public demands more and more that their foods be prepared under known sanitary conditions and reach them preserved in that condition. Much sun-dried fruit is admittedly not dried nor always packed in a sanitary way, a fact which militates against its sale to discriminating purchasers. Dehydration, on the other hand, is adapted to the quantity production of dried foods under modern sanitary conditions and permits all the steps in preparation, drying and packing to be combined under one roof and under the supervision of one person.

Investigations of University of California

Realizing the importance of this industry to the future marketing of California's fruits and vegetables, the University of California has carried on extensive investigations in dehydration for the past three years. This work has been conducted by Professor W. V. Cruess and the writer, both of the Fruit Products Laboratory of the College of Agriculture. A commercial size tunnel dehydrator with a daily capacity of six tons was erected at the University Farm at Davis in 1919. Some 150 tons of apricots, peaches, pears, prunes, figs and grapes have been successfully dehydrated and much valuable information published on methods of dehydration. A smaller dehydrator which permits of exact control of the temperature, humidity and volume of air used in dehydration was designed and constructed in the Fruit Products Laboratory at Berkeley for intensive studies.

New Dehydration Developments During Past Year

The general business depression of the past year retarded the development of dehydration. In spite of this, some 15 or 20 new dehydrators were erected. Statistics for this year are not yet available but it is certain that a greater tonnage of prunes was dehydrated than ever before. Several of the largest plants are busy dehydrating pumpkin and the production of pumpkin flour will undoubtedly exceed any previous year. Interest in the dehydration of other fruits such as berries, apricots, peaches, pears, figs, cherries, etc., is growing rapidly and sufficient quantities of these fruits have been dehydrated to demonstrate their quality. Preliminary experiments in the Fruit Products Laboratory indicate interesting possibilities in the dehydration of tropical fruits, dehydrated bananas and pineapple retaining all their fresh flavor and color being readily obtainable.

It is a fact that only the poorer classes in the United States and foreign countries buy sun-dried fruits, the only exception being raisins and to some extent prunes. The reason for this is that sun-dried peaches, pears, apricots and even evaporated apples are not dried and packed in a way attractive to the consumer. It is not expected that dehydration will displace sun-drying but rather that it will produce new and different forms of dried fruits which will appeal to many classes of trade not now using dried fruits. If in so doing dehydration also stimulates the producers of sun-dried fruits to better methods of packing, its service to California horticulture will be unquestioned.

Use of Margarin in Pennsylvania

Figures from the Bureau of Foods of the Pennsylvania Department of Agriculture would indicate that there is less demand for butter substitutes than a year ago for approximately 800 fewer licenses have been issued for the sale of oleo than during 1920.

During 1921 there were 6,284 licenses issued by the bureau for the sale of oleomargarine while so far, during the present year only 5,455 have been issued.

Pears Successfully Dehydrated in Northwest

New Field For Commercialization of This Important Crop Opened by Bureau of Chemistry and Oregon Experiment Station

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and

RAY POWERS

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PROBABLY no fruit is more delicate of texture, color and palatability than the pear, and certainly none of the more common fruits is more difficult to handle, dehydrate, and pack in a way that does not materially alter its flavor and color. Few fruits offer a more diverse field for manufacture than the pear.

The U. S. Department of Agriculture, in co-operation with the Oregon Agricultural Experiment Station, has conducted a series of experiments on the dehydration of pears, in order to assist in the development of a new field for the commercialization of the pear crop.

In addition to the canned and dried pears, already known to the majority of people, it is believed that pear confections would be well received by the public. Dehydration should open a way for many different methods of manufacture of such confections, for in this form of concentration pears can be made to take various flavors with ease. It is most important that the pear be dehydrated in a manner profitable to the grower and dehydrator, pleasing to the consumer and acceptable to the Federal and state food officials.

Practically all of the pears which have been dehydrated are of the Bartlett and D'Anjou varieties, and for the experimental work here discussed Bartlett pears, the most common variety in the Northwest, were used.

Condition of Original Fruit Important

Among the important requirements for insuring a good finished product, the condition of the original fruit ranks foremost. Dehydration does not improve poor fruit and pears to be subjected to this process must be sound and of good quality. The degree of maturity of pears for dehydration and methods for testing their ripeness in commercial practice need further study. At present ripeness is a relative term. The Oregon Agricultural Experiment Station will shortly issue a bulletin dealing with the measurement of the maturity or ripeness of pears which may be of aid to dehydrators.

In the experimental work a tunnel dehydrator of commercial size was used under controlled conditions of temperature, humidity and circulation. The pears were peeled, halved and cored in the usual manner. A cool, weak saline solution (approximately 1 per cent) covered the pears at all times between the peeling and traying, except when some operation made their removal necessary

for a brief period. This method insures the retention of the natural color of the peeled and cut surfaces of the fruit. It is followed at present by some dehydrators of pears on a commercial scale and offers no difficulties in practical application. Water kept cool by continuous changing has been used successfully in place of the salt solution.

It cannot be emphasized too strongly that during preparation the cut surfaces of the fruit should be kept from direct contact with the atmosphere as much as possible.

The traying of the fruits should be conducted as rapidly as possible and immediately followed by the sulphuring process. Under these conditions of preparation, the trayed pears when placed in the sulphur chamber will show slight, and frequently no changes in surface color.

It is obvious that fruit placed in the sulphur chamber under the conditions described requires practically none of the sulphur fumes for a bleach. Only the amount which will make them retain their color during the dehydrating procedure is necessary, and this is very small. Because the surfaces of the fruit are thoroughly moistened by the preparatory treatment, the sulphur fumes will be readily taken up. In a double-compartment sulphur chamber holding 20 trays in each compartment or a total of 40 trays, each approximately 33 by 37 inches, spaced 1½ inches apart, the period of sulphuring need not exceed 20 to 25 minutes in commercial practice. The maximum time of sulphuring during the experimental work was 15 minutes. The results thus obtained showed that protection against color changes during dry-

ing was adequate and that the time need not be increased to obtain a dehydrated pear in the expected shade of the concentrated fruit.

Sulphur fumes should never be used as a preservative in the production of dehydrated pears or other products. The use in quantities sufficient to act as a preservative tends to stimulate the marketing of inferior products.

Experiments omitting the use of sulphur were conducted. The results give promise of success in obtaining a satisfactory dehydrated pear combining the appearance of the sulphured fruit with a flavor untainted by the bitterness of sulphured fruits. Steam was the reagent used in these test experiments. The sulphur box previously described was fitted with perforated steam pipes in the spaces be-

DEHYDRATED PEARS NEXT

"Few fruits offer a more diverse field for manufacture than the pear. In addition to the canned and dried pears, already known to the majority of people, it is believed that pear confections would be well received by the public. Dehydration should open a way for many different methods of manufacture.

"Probably no fruit is more delicate of texture, color and palatability than the pear, and certainly none of the more common fruits is more difficult to dehydrate in a way not materially altering texture or flavor."—
Professor Wiegand.

tween the trays. Different lots of pears were steamed for from 1 to 15 minutes, with varying results. Pears closely resembling the translucent fruit obtained by sulphuring for several hours or a day or more, and preferred by some dehydrators, were obtained by this method. Pears resembling the light sulphured fruits were also obtained. Although there is some objection to this practice, the results of the experiments are sufficiently encouraging to warrant further studies on the subject.

Using the pre-treatment, preparation, and apparatus described, experiments on the dehydration of pears were conducted in the range from 130 degrees to 150 degrees Fahrenheit and from 20 to 40 per cent relative humidity.

All experiments were conducted at approximately 1200 lineal feet of circulation.

While concrete results cannot yet be given, the indications are that because of the delicate color and flavor of the pear, the drying conditions for this fruit require close study. It would seem also that slight deviations in the conditions are more pronounced in effect on the ultimate product than in the case of many of the other fruits for which wider limits may be designated.

Small fruits, peelings, and cores may be used to advantage in making vinegar or pear butter, information on the manufacture of which are obtainable from the authors of this paper at the Oregon Agricultural College Experiment Station.

Encouraging Development of Agar-Agar Production

RESOURCES for the successful production of agar-agar, an important ingredient in the preparation of jellies and many other food products, have been practically unprobed in this country, according to recent investigations undertaken by the United States Bureau of Fisheries and summarized in Economics Circular No. 51 issued by that body.

Up to the present time, states this pamphlet, we have been importing agar-agar, an essential product to our general welfare, from countries thousands of miles distant, when a superior product is to be had, probably for less cost, from algae growing on our own shores.

Many Uses of Agar-Agar

Agar-agar has been put to many uses, the number of which is increasing from year to year, states the report. It has long been esteemed in China and Japan as a food. It is employed in the preparation of jellies, thickening of soups, ice cream, fruits, meat, or fish, and in candy making. In this country it is used most extensively in hospitals and in bacteriological laboratories. As a base for culture media it is unexcelled by any other substitute, since it remains solid with a smooth, firm surface at the higher temperatures required for cultivating certain species of bacteria. Other jellies are useless because they melt under the requisite conditions.

Recently it has been found to possess considerable therapeutic value in the cure of chronic constipation. Its action is dependent on the fact that it has the property of absorbing and holding water, becoming at the same time a lubricant and mild mechanical stimulant, affected but little by the digestive enzymes. The action is not violent as with ordinary cathartics, and it leaves no harmful after-effects. It has also been found a valuable dressing for certain types

of wounds. Emulsions for photographic plates much superior to the ordinary gelatin emulsions are claimed to have been made.

Plentiful Yield in California

Of a dozen or more species of algae on the California coast supposed to yield gelatin and examined by Irving A. Field, late professor of biology in Clark College, who was in charge of the special investigations of the Bureau of Fisheries, the following species were found of chief importance, according to the report:

"The species *Gelidium Cartilagineum* was reported by an agent of the Bureau of Fisheries as growing in abundance on the California coast from the shores of San Louis Obispo County southward and on the west coast of Lower California. The amount of dry gelatin which can be extracted from this species is from 40 to 45 per cent of its weight when dried in the sun and air, and the quality seems to be equal to that of the best agar-agar.

"A small quantity of *Gelidium Amansii* was found mixed in with the sample of *Gelidium Cartilagineum* from the Pacific coast. This was sufficient for one test only, which yielded 28.93 per cent dry gelatin calculated on the weight of the sundried weed.

"Two samples of *Gelidium Australe* which were extracted yielded 32.3 per cent and 37.5 per cent of dry gelatin, respectively. The fat content of water-free samples varied between 0.2 per cent and 0.405 per cent.

"Another seaweed from the California coast which readily yielded a large supply of gelatinous extract in *Endocladia muricata*. It yields from 37.5 and 48 per cent of gelatin."

Additional copies of this publication may be procured from the Superintendent of Documents, Government Printing Office, Washington, D. C., at five cents per copy.

Food for Growing Children

"NO child has a fair chance in life who does not have a proper diet."

This is the keynote of an interesting illustrated pamphlet, "Food for Growing Children," recently issued by the child nutrition department of the H-O Cereal Company, Buffalo, N. Y., showing the importance and relation of the various foods in the daily diet of children.

"Nowadays growing is serious business for children," says this pamphlet. "Many parents 'keep books on them,' comparing their gains with the height and weight charts issued by the Government.

"Some schools, too, keep a record of pupils' weights and heights with the purpose of making them more responsible for their own growth. They are taught that early to bed and not too early to rise will give the long hours of sleep necessary to good growth; they learn that bathing is a good tonic as well as a means to cleanliness, and above all

they are told, that how children grow depends directly upon the kind of food they eat.

"It almost seems like the magic of Alice in Wonderland. One can hear Alice saying to the Caterpillar, 'I should like to be a little larger, sir, if you wouldn't mind,' and the Caterpillar answering, 'One side of this mushroom will make you grow taller and the other will make you grow shorter.' Whereupon Alice, reached as far around as she could with each hand, and broke off two pieces which she nibbled alternately to bring herself to the desired size.

"Nutrition experts in their laboratories today work just such magic."

Written in an engrossing manner and illustrated with child pictures designed to appeal to parent, teacher and child alike, this little book explains the fundamentals of building a diet, the necessity of milk, cereal foods, vegetables and other food factors. There are in addition chapters devoted to the daily program of the child and the planning of meals.

Interesting Substitutes for Food Products

Chemists on Watch for New Possibilities in Supplanting Maranta Starch, Navy Beans, Coffee, Tomatoes and Spinach

Editor's Note.—Arno Viehoever obtained his early education and training on the continent, receiving from European universities the degrees of food chemist, pharmaceutical chemist and bacteriologist, in addition to Ph.D. At present he is in charge of the activities of the Pharmacognosy Laboratory of the Bureau of Chemistry and holds the offices of secretary of the scientific section of the American Pharmaceutical Association and referee on medicinal plants of the Association of Official Agricultural Chemists.

By ARNO VIEHOEVER

In Charge, Pharmacognosy Laboratory, U. S. Bureau of Chemistry

WE never cease to learn! This fact, so evident in much that we do and see in our daily life, is also true with regard to products we use for our nourishment or for the cure of our ailments. Some of the foods and drugs, probably strangers to most people, are worth commenting upon and comparing with those with which we are more familiar and therefore inclined to consider superior.

Zamia and Its Starch

One of the food products practically unknown in states other than Florida, and there known chiefly by the native inhabitants, is the starch obtained from the zamia plant, *Zamia floridana* D.C. This plant occurs wild in the vicinity of Miami, Florida. The root stalk, practically buried in the ground, contains 30 per cent, more or less, of starch. An illustration of the entire plant and also of the starch grains is given herewith. (Plate I). This starch is used in the making of bread and other food products of which starch is an ingredient. It has been quite generally used for these purposes by the natives of Florida, who know the product as "Koonti," "Coontie," "Comptie," etc. Commercially the product has been placed on the market as "Florida Arrowroot," and its use has been advertised for the making of biscuits and many other food preparations. There is no distinct quality known to us which would make this product preferable to true arrowroot, obtained from *Maranta*, which is also grown to a limited extent in Florida. The claim is made, however, that zamia starch does not have a starchy taste.

The name "Florida Arrowroot," applied to zamia starch, is unquestionably misleading. The product may have its value but at present is only obtained on a small scale compared with the large amounts of maranta starch generally known as arrowroot. Zamia starch may be distinguished from maranta starch by the form and size of the starch grains; zamia starch is practically spherical, ranging in size from 6 to 40 microns, mostly 16 to 32 microns, while maranta starch is oval to ellipsoidal, 3 to 4 angled, ranging in size from 9 to 50 microns, mostly 30 to 45 microns in the longer axis. Further interesting data on this product and the plant from which it is obtained

may be found in an article by J. K. Small¹ and another by J. F. Clevenger,² which will soon appear in print.

Tepary Beans, Food Product Practically Unknown

Tepary beans represent a food product until a few years ago practically unknown, although it is being used quite generally by the native Indians of Arizona and adjoining states in Mexico. The plant is closely related to the common bean as well as to the Lima bean. It has practically the same general chemical composition. On account of the prolific yields (up to 4,000 pounds or more per acre) the beans were, until very recently, grown in comparatively large amounts in California. Some varieties of tepary beans have a somewhat bitter taste, noticeable when the water in which they were soaked had not been removed. Possibly for this reason they have not obtained great popularity on the general market; in fact, it is intimated that at present very few, if any, are grown in California. Reports, however, have come to the attention of the Bureau of Chemistry that tepary beans have been and are being substituted for navy beans. Thus far we could not verify this report, but shall continue the collection and examination of further samples. There is no doubt that the beans are very similar to some of the horticultural varieties of the common beans, and especially similar to the small California white beans. The characters

which permit of differentiation are the following:

The tepary bean is somewhat flattened, showing radial markings of the seedcoat, while the common beans of the type *Phaseolus vulgaris* are more round and show irregular markings of the seedcoat. The seedcoat of tepary beans is without gloss, due to the lack of a cuticula of the seedcoat, thereby permitting water to penetrate the bean in a few minutes. In the common bean we have a distinctly glossy seedcoat, representing a waxy cuticula, which prevents the water from readily entering and thus delays the soaking process. A section of the entire bean shows a yellowish tissue cotyledons) in the case of tepary, and a grayish white tissue in the case of the common beans.

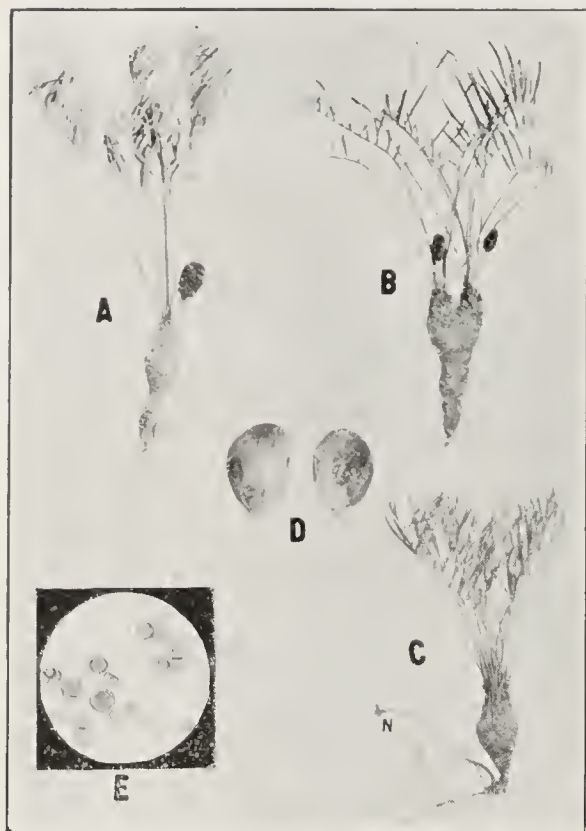
¹Small, J. K. "Seminole Bread," New York Botanical Garden, 22,121-137, 1921.

²Clevenger, J. F. "A Report on the Zamia Starch Situation," Contribution from the Bureau of Chemistry, U. S. Dept. of Agriculture.



Arno Viehoever

PLATE I

*Zamia floridana* D.C.

KEY TO PLATE I

- A. Female plant showing tuberous-like rhizomes, crown of leaves, and a pistillate strobilus (cone). Approximately $\times \frac{1}{8}$.
 B. Plant showing staminate strobili (cones). Approximately $\times \frac{1}{8}$.
 C. Magnified view of the plant.
 D. Seed. Approximately natural size.
 E. Starch grains. Approximately $\times 140$.

PLATE II

*Solanum macrocarpum*, Linn
Fruiting Plant

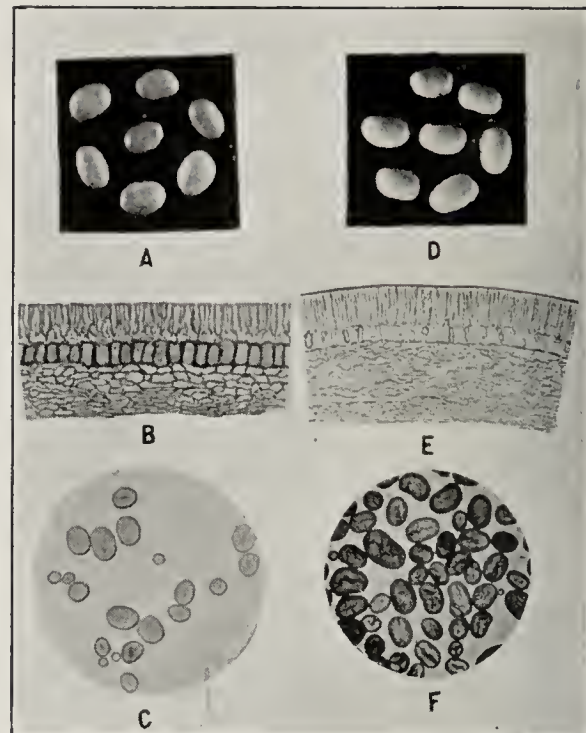
From illustration in *Wien. Ill. Gartenzeitung*, 1894, 30, Fig. 7.

- C. Plant showing root tubercles. N. Approximately $\times \frac{1}{8}$.
 D. Seed. Approximately natural size.
 E. Starch grains. Approximately $\times 140$.

KEY TO PLATE III

- A. Tepary beans (*Phaseolus acutifolius* v. *latifolius*, F.) Approx. natural size.
 D. Common beans (*Phaseolus vulgaris*) approx. natural size.
 B. Tepary bean, cross section. Approx. $\times 300$.

PLATE III



Common and Tepary Beans

- E. Common bean, cross section. Approx. $\times 300$.
 C. Tepary bean, starch grains. Approx. $\times 110$.
 F. Common bean, starch grains. Approx. $\times 110$.

* After Reichert, E. T. "The Differentiation and Specificity of Starches in Relation to Genera, Species, etc." (1913), Plate 6, Fig. 31.

Under the microscope the palisade cells forming the first layer of the seedcoat are materially smaller in the case of tepary than those of the common beans, ranging from 40 to 60 microns in the case of common beans and from 25 to 40 in the case of the tepary beans. The starch grains are also noticeably smaller in the case of the tepary bean than in the common bean. Both the seedcoat of the tepary and the common beans have calcium oxalate crystals, which differentiate them, as a general rule, from beans of the Lima type, *Phaseolus lunatus*, which have no oxalate crystals.

PLATE IV

*Solanum macrocarpum*
Whole and cross section of fruit

Illustrations showing some of the striking characteristics discussed above are given (Plate III).

Robusta Coffee

This coffee, discussed to some extent at the 1920 meeting of the Association of American Dairy, Food and Drug Officials, has been further studied. It is evidently imported in large quantities from Java. A report has reached us that this cheaper coffee, inferior in flavor, has been substituted and is being now substituted for genuine Old Java Arabica coffee. A preliminary examination of samples collected in the open market seems to substantiate this report. The findings which appear to permit differentiation are mainly the peculiar folding of the endosperm, showing quite generally a distinct hook in the case of the Robusta coffee bean. The size of the embryo and especially the relation of rootlet to hypocotyl will be found useful in the differentiation of the species *Coffea arabica*, *liberica*, and *robusta* (Plate III).

Solanum macrocarpum, Possible Substitute for Tomatoes

This food product, now being used by the natives of the islands of Madagascar, Mauritius, etc., has recently come to our attention as a possible substitute for tomatoes. This fruit is very similar in general appearance to tomatoes, although those we have seen were considerably larger and of a deep yellow color. Whether it is a desirable food product is still undecided. The following analysis, carried out in the Bureau of Chemistry, may be of interest:

	Per Cent	Gms.
Water	4.67	Fresh weight..... 182
Fat	5.38	Air dry weight..... 31
Fiber	9.96	Loss
Ash	7.90	151
Nitrogen	3.33	
Protein	20.81	

The presence of solanine has been definitely proven by us, although not enough material has been at hand to determine the amount present. The illustrations attached (Plates II and IV) show the plant, the whole fruit, and a section through the fruit.

African Sorrel

This represents a new product which is under consideration by the Office of Foreign Seed and Plant Introduction, Bureau of Plant Industry. Its strong vegetative growth and its peculiar adaptation to certain soils and climates very strongly suggests the cultivation in this country on a large scale. The presence, however, of considerable amounts of oxalic acid, as found in the Bureau of Chemistry, in the form of soluble oxalates, as well as calcium oxalate, suggests caution. It is a well known fact that some people are especially susceptible to poisoning from oxalic acid, and the poisoning cases reported after eating of rhubarb leaves are by no means rare. It appears possible, however, that by the addition of calcium carbonate the soluble oxalates may be precipitated and thus the major portion of the objectionable ingredient may be eliminated. Another means suggested, and possibly equally effective to make the product available for general consumption, would be the removal of the water in which the material has been soaked and boiled. At any rate, we have here a product which may be placed on the market and which may be used as a substitute for spinach and other greens, but the identity and characteristics of which should be known to the consuming public and especially the food officials concerned with the welfare of the people.

Cassina of Commercial Importance as a Drink

Cassina is a product obtained from *Ilex cassine* Walt., sometimes also referred to as *Ilex vomitoria*, Ait., found growing in certain southern states, notably South Carolina, Georgia and Texas. Upon subliming of the leaves, caffeine, the active principle in tea and coffee, can readily be obtained. The amounts found by Power and Chesnut³ ranged up to 1.65 per cent.

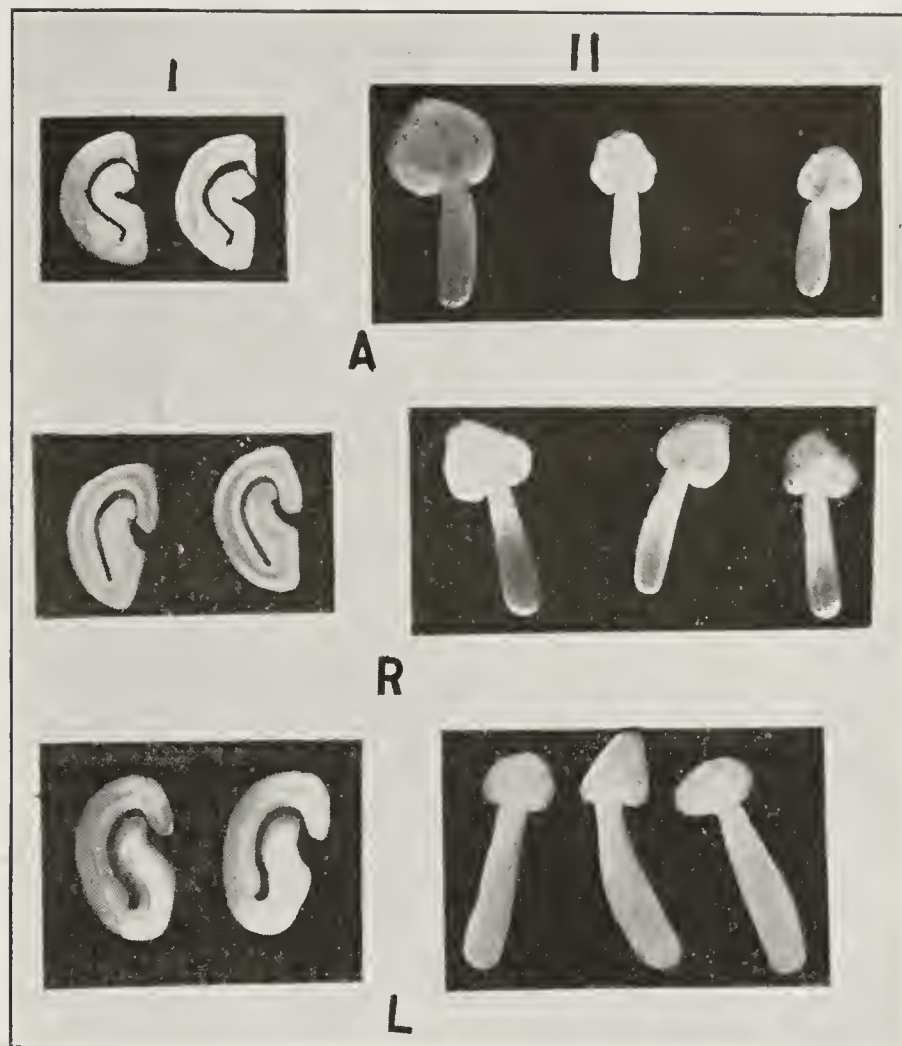
Due to the efforts of Mr. F. G. Mitchell, tea examiner of the Bureau of Chemistry, this product may become of great commercial importance as a daily drink. The material is available in large amounts and can readily be obtained during the entire active growth of the plant by stripping the leaves from the branches. Processes have been developed in the Bureau of Chemistry which yield products from which a very palatable drink can be prepared. Illustrations (Plate VI) showing the growth of the plant in bush and also in hedge form, as found in South Carolina, are introduced. Plate IX is taken from the article by Power and Chesnut, and shows a branch with leaves, and caffeine isolated therefrom.

Drug and Spice Products

Little is known of the product recently imported as thyme, which, upon examination, was found to be Spanish thyme. The appearance of the entire plant is different from that of the normal thyme, *Thymus vulgaris* L. Illustrations are introduced showing the morphological characteristics of both (Plates VII and VIII). The difference in shape of the leaves and the presence of comparatively large white hairs at the base of the leaves of Spanish thyme is especially striking. The flavor is also different, although suggesting a close relationship to thyme. Whether thymol

³Power, F. B., and Chestnut, V. K. "Ilex Vomitoria as a Native Source of Caffein," J. Am. Chem. Soc., 41, No. 8, p. 1308, 1919.

PLATE V



Coffea Robusta, Arabica and Liberica

Fig. I. Cross section of beans.
Fig. II. Embryo.

A. *Coffea arabica*.
R. *Coffea robusta*.
L. *Coffea liberica*.

is present or not in this variety *floribunda* is not definitely known. The product is really a substitute, the value of which is at this time distinctly problematical.

Cubeb substitutes

Two new substitutes for cubebs, *Piper cubeba*, have recently come to our attention, namely, *Piper ribesioides* Wallich., and *Piper cubeba* var. *rinoe badak*. The morphological characteristics of both substitutes are very similar to those of the normal product. *Piper ribesioides* has the largest fruit of any and the thecaphore, a stem-like growth attached to the fruit, exceeds in length any of those attached to the other fruits. *Piper cubeba* var. *rinoe badak*, almost identical in anatomical structure with the official cubeb, according to Shillitoe⁴ is considered poisonous. Cubebin, one of the active constituents of cubeba, is evidently lacking in the two substitutes. Cubebin appears to be responsible for the red color which the cubeb fruit or the sublimate of the fruit gives with concentrated sulfuric acid or a mixture of equal parts of sulfuric and phosphoric acid. The substitutes give a brownish color. The flavor of the

⁴Shillitoe, Buxton. The Lancet, May 2, 1885, p. 829.

PLATE VI

ILEX CASSINE L., yielding the drink "Cassina"

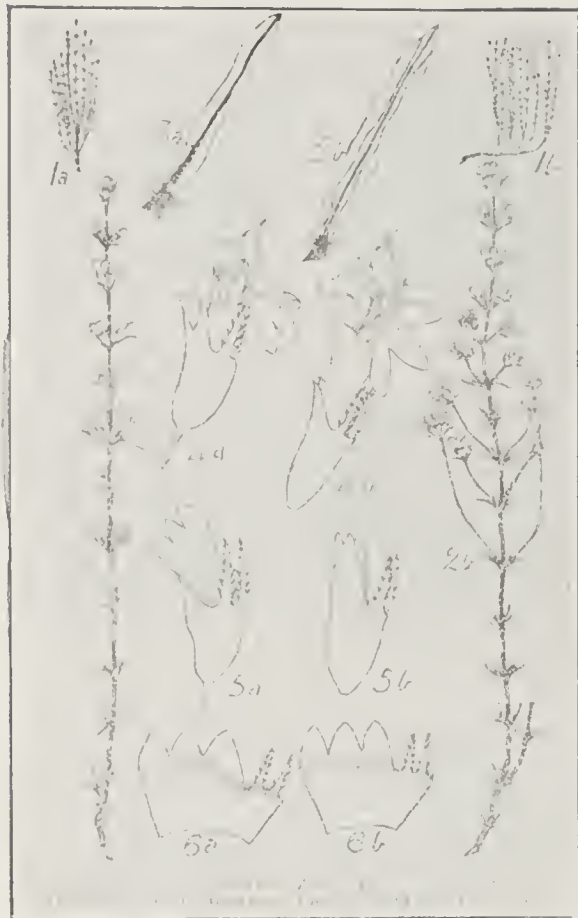


Bush Form



Hedge Form

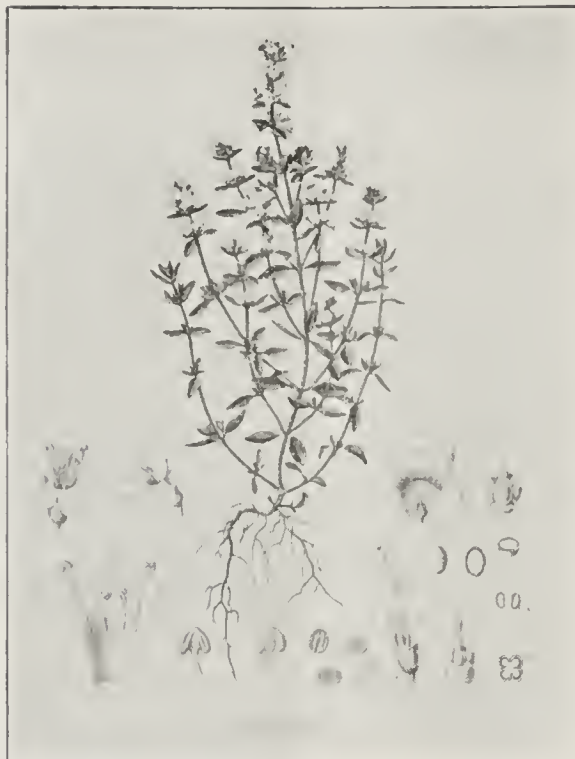
PLATE VII



Spanish Thyme (*Thymus zygis* L.)
After Caballero.

Figs. 1,a to 6,a—var. *Gracilis*.
Figs. 1,b to 6,b—var. *Floribunda*.
Fig. 1. Branching habit.

PLATE VIII



Thyme (*Thymus vulgaris* L.)
Fig. A. Branching habit (after Berg and Schmidt).

Fig. 2. Clusters, sessile or stalked.
Fig. 3. Linear leaves with hairs at base.
Fig. 4. Flowers, stalked or sessile.
Figs. 5 and 6. Calyces showing characteristic curving of lips.

PLATE IX



Cassia

Hlex vomitoria, a shrub of the Southeastern United States, with specimens of caffeine obtained from its leaves. Natural size. After Power and Chesnut.

ether extracts is different, being mace-like in the case of *Piper cubeba* var. *rinoe badak*, and turpentine-like in the case of *Piper ribesioides*. Further data are included in a recent report by the author, given before the drug section of the Association of Official Agricultural Chemists and to be published in the Journal of the A. O. A. C.⁵

Twin Leaf, a Substitute for Goldenseal

Any substitute for goldenseal deserves special interest on account of the present price (\$6.00 a pound, more or less) quoted for hydrastis. *Jeffersonia diphylla* in several respects is very similar to hydrastis. It lacks, however, as far as our preliminary experiments indicate, certain active

constituents of hydrastis, especially hydrastine. From indications observed it is evident that berberine occurs in hydrastis but is absent in *Jeffersonia*. Both are domestic drugs, and as our records show, *Jeffersonia* has been mistaken and collected for hydrastis, which is one of the few domestic drugs cultivated on a considerable scale and often exported to foreign countries.

Conclusion

While the list could be extended, it is felt that the examples given show the importance of work in this field. Data are necessary to enlighten the one who comes in contact with new products. He should be familiar with these products, at least to the extent that he may be able to recognize their nature and evaluate their usefulness in the machinery of our daily life.

⁵Viehöver, A. "Identification of Crude Drug Substitutes."
⁶Shillitoe, Buxton. *The Lancet*, May 2, 1885, p. 829.

Study Variations in Bottled Foods

MANY state laws and the net-weight amendment to the Federal and Food Drugs Act require that food in package form bear a statement of the quantity of contents. The food official sees to it that food in bottles varies as little as possible from the stated quantity of contents conformable with good commercial practice. The bottler is expected to deliver bottled food products, such as flavoring extracts, mineral water, carbonated and uncarbonated beverages, molasses, honey, maple sirup, vinegar, olive oil, essential oils, table oils, catsup and salad dressing as uniform as is commercially practicable. The bottle manufacturer, therefore, is under direct obligation to the bottler and indirect obligation to the consumer to furnish bottles which are as uniform in capacity as it is commercially possible to make them.

A professional paper, "Volume Variation of Bottled Foods," by H. Runkel and J. C. Munch, has just been issued as United States Department of Agriculture Bulletin No. 1009. This bulletin describes a commercial method of bottling which may be considered "good." It calculates maximum variations in the volume of bottled liquids used as food when packed in accordance with specified good commercial practice, and presents data showing that the calculated maxi-

mum variations of the good commercial practice outlined can be met by the bottler.

Bottles are manufactured by three processes: Hand, semi-automatic machine and automatic machine. Data are presented showing the variations found in bottles blown by each of these processes.

There are several methods of filling bottles, and it is customary in the trade to fill a given product to a given height. According to the best commercial practice the bottler should state in his order to the bottle manufacturer the specifications as to capacity when filled to a certain height. The authors of the bulletin advise that representative samples of every lot of bottles received be tested, and any that are appreciably under capacity be rejected. Bottles should always be filled to the height determined from the results of tests on samples. The label should be printed with a definite, correct statement of the quantity of contents, and applied unaltered to the filled bottles.

When wide variations in the capacity of bottles are found, two courses are open to the bottler: He can change the height of the fill or alter the declaration of the quantity of contents on the label.

EDITORIAL

Retail Food Prices—Are They Going Down?

THERE are investigations and investigations; and undoubtedly the much heralded investigation of retail food prices by the Attorney General may peter out in futility, as many ones past and present. or, on the other hand, result in lasting good to the industry.

One cannot help but feel, however, that if the present move of the Government accomplishes nothing else, it will have done a permanent service to all the food trades in giving, as it has already, official Governmental recognition to a fact already widely known—namely, the gaping inequalities between wholesale and retail prices. The publicity alone that has attended the announcement of the Attorney General may itself go a long way toward remedying a crucial situation.

That the retailer has his side of the story to tell, no one will dispute. In a great many instances, he is overstocked with supplies purchased at the peak of high prices, when the price barometer was fairly bursting with post-war values. That he is loathe to sell these at the lowered values of to-day is natural. That he should in many instances take advantage of the situation and recoup losses by keeping to the higher levels, although wholesale prices have gone scurrying downward, is quite in line with human nature.

A time has come, however, when clear-cut profiteering through retail price agreements or other means must have an end. What really has been exercising such disastrous effects on business prosperity is not the rise and fall of the general price level, as noted in these columns in a previous issue, but the disturbance of the old relationship between wholesale and retail prices. The restoration of equilibrium between these two is more than to be desired.

That profiteering is going on can be proved in stores all over the country. In canned goods, for example, according to unquestioned authority, there are instances of grocers charging three times the amount paid to the manufacturer. There are still more instances of canned goods being sold at double the cost to the retailer, while the only commonly accepted maximum profit is a fifty per cent one.

Protest has recently been heard against the propaganda being carried on by manufacturers against these inordinate profit charges, on the ground that they tend to place the retailer in bad repute with the public. Emphatic exception was recently taken by a retail grocers' association against the recent widely published statement of H. J. Heinz Company, because this undertook to acquaint consumers with "maximum prices of Heinz products." The fallacy of this reasoning on the part of the retailers is at once apparent. The only business that is being hurt by the whole controversy over wholesale and retail prices, is the manufacturer's. It is his branded products that are being sold at the higher price, and unusual, indeed, would be the consumer who would not inevitably associate the brand name with the high cost of the particular food product.

On the other hand, if conditions are as many sincere spokesmen for the retailers say, the investigation of the Attorney General should be welcomed alike from these quarters. There is still some balm left in Gilead. If those in wholesaling and manufacturing have all been wrong,

why, then, what better exoneration could be made than by a Governmental agency? Rather than protesting against the move of Government, retailers, as all other factors in the food trades, should give it their wholehearted encouragement.

Necessity for Systematic Propaganda on Proper Feeding

PRAISING highly the pains taken in instructing the masses in the United States in scientific feeding, Dr. E. C. Van Leersum, one of the best known physicians in Holland, in a recent lecture before the Royal Society of Medicine, London, England, talked at length on the necessity of systematic propaganda in the nutrition of the people.

Only Germany, Dr. Van Leersum said, leads the United States in the number of scientific investigators along dietetic lines. He said that the practical sense of the people is reflected in the work of its scientists upon such problems, and he referred to the work which has been done by Armsby, Benedict, McCullom, Lusk, Mendel, Osborne and others in the field of dietetics.

The speaker stated that it would be easy to fill a volume with enumeration and description of the ways in which in the United States propaganda is devised for rational feeding. He called attention to the fact that the American is much freer in the choice of propaganda methods than the European, who has an exaggerated fear of making himself ridiculous. The American is a master of advertisement and is never at a loss to find a catching phrase, a slogan to arouse enthusiasm. The lecturer was greatly impressed with the attention paid to diet in American hospitals, and pointed out that in Europe the problem of feeding hospital patients had, despite its importance, received but little attention. The matrons, superintendents, administrators and cooks who were responsible for this duty were not experts, and at best only amateurs in both cooking and feeding. The physician is too busy with other cares to assume this added responsibility. He could prescribe the diet as he prescribes drugs, but in neither case is he concerned with filling the prescriptions.

It was suggested that dishes or meals be prescribed like drugs, and filled in the same manner by experts. Naturally, only certain patients would be fed by prescription and in any case a number of diseases have standard hospital diets, while many patients require only the regular house diet.

The work of American dietitians in city slums was highly commended by the visitor who was especially impressed by a popular lecture which he heard in an empty shop in Amsterdam Avenue, New York. As will be seen, the Dutch professor mentioned American dietetics only to praise them, and such praise is doubtless merited in the main. However, it is well to remember, that less attention is paid to-day than formerly to the exact caloric value of foods and this is probably the case, or will be the case, in connection with vitamins, which, like most innovations, may become fetishes. It is possible and doubtless advisable to prepare the diet without immediate reference to these features, being guided by common sense in the selection of palatable and digestible articles, and merely making sure that they are well balanced and have sufficient caloric and vitamin values.

Further Opinions on Best Coffee Brewing Methods

Manufacturers Realizing that Intelligent Consumer Education is Just as Necessary as Production of Good Brand

THAT coffee manufacturers are increasingly realizing that their task ought not to end with the production of a good brand, but ought to extend further so that the public may be intelligently educated to the use of this product, is clearly evidenced by further letters on the subject of coffee preparation recently received by The American Food Journal.

Some months ago this publication started a discussion as to which brewing process is the best—percolating, boiling, steeping, dripping (filtration method), or tricolator. Letters were received from prominent leaders in the coffee field, sales managers, chefs, presidents of coffee roasting firms and others, with an almost unanimous preference indicated for the filtration or tricolator methods.

The following are a few additional communications that were included in the month's mail:

Says All Authorities Agree on Drip Method

Editor, The American Food Journal:

I think all authorities agree that the drip process using a finely ground coffee, a clean bag and a clean urn makes the best and healthiest cup of coffee.

There are, however, a great many people whom it is impossible to get to make drip coffee or use anything but the old fashioned coffee pot, and these are the ones that should be educated not in the use of other utensils but to exercise more care in the cleanliness of the coffee pot that they use, the grinding of the coffee and the freshness of the water.

I have talked with many people on the making of coffee some of them were coffee roasters. Invariably they all were in favor of the old fashioned coffee pot, and all declared they could make a cup of coffee by taking fresh roasted coffee, grinding it medium, using a clean coffee pot (enameled preferred), heating the pot with a little hot water, using a tablespoonful for each cup and an extra tablespoon for what the grounds will absorb. Use fresh boiling water and be sure it is boiling; pour on ground coffee. Let this stand on the warm stove for about five minutes and pour a little cold water onto it to settle grounds and serve.

I may add that with fresh roasted and freshly ground coffee you can make a wonderful cup of coffee by following the above directions.

Wishing you success in your undertaking and assuring you that it is a pleasure to do anything I can to help along anything that means better coffee, I remain,

Yours very truly,

E. R. GODFREY & SONS COMPANY.

December 14, 1921.

Milwaukee, Wis.

Using Tricolator 365 Days in Year

Editor, The American Food Journal:

I found your magazine very interesting indeed, inasmuch as it touched on two subjects that I am much interested in, namely bananas and tricolators, to say nothing about coffee, of which we are producers, as well as of bananas.

Having lived in New Orleans for about thirty years, I was easily converted into drinking "drip" coffee, but about three years ago I accidentally ran across the

tricolator, which I have been using 365 days in the year since.

Very truly yours,

F. C. BOWLES,

District Manager, Vaccaro Brothers & Company,
December 27, 1921. Cedar Rapids, Iowa.

Drip Coffee Pot Long Tested

Editor, The American Food Journal:

We believe that the "home drip coffee maker," patented by ourselves, fulfills all the requirements of Professor Prescott, as published in a recent issue of The American Food Journal:

The "home drip coffee pot" is the result of the experience of many years in the roasted coffee business, and it has been used for years in a local business in testing coffees for hotel blends, and is now offered to the lovers of good coffee for use in their own homes.

The art of making drip coffee is by pouring boiling water over ground coffee and allowing the water to filter through the ground coffee, extracting the flavor and strength, and then dripping into a receptacle separate from the coffee grounds.

This process is nothing like the so-called percolator coffee, which simply boils the coffee so that the steam therefrom forces the boiling coffee up a tube to percolate over the ground coffee, this operation being continued over and over again until the coffee is sufficiently strong, and until practically all the appetizing aroma of the coffee has been boiled away, and the house and neighborhood scented therewith.

The drip coffee pot retains all the aroma of the coffee as is apparent when using the pot, and makes coffee in perfection with the least possible attention, and equal to the best coffee ever served at any hotel or restaurant.

That this dripping process extracts and retains all the desirable flavor and strength of the ground coffee, can easily be proven by boiling for fifteen minutes, in a coffee boiling pot, with a cup or two of water, the coffee grounds taken out of a drip coffee pot after the filtering has been completed; and the liquid resulting from this boiling will have no coffee flavor, merely the taste of the vegetable fibrine of the coffee bean.

Coffee can be made in a drip coffee pot to suit every taste, ranging from the distinctive flavor of the coffee bean (when the coffee has just been filtered, that is the taste one gets by chewing a bean of roasted coffee, some might call it a raw taste), to the richer flavor given to the filtered coffee by being kept hot for a shorter or longer time, thereby developing the aromatic principles in the coffee, and even down to the bitterer taste like boiled coffee, for which see directions.

Incidentally, Professor Prescott himself uses our drip coffee maker.

Very truly yours,

W. H. BRUNING,

(President, J. F. Bruning & Son,
December 24, 1921. Evansville, Ind.



Retail Prices Must Come Down, Says Attorney General Daugherty

Seeks Cooperation of State and Local Officials in Breaking Down Retail Agreements Fixing Prices in Violation of Anti-Trust Laws

Washington Bureau, American Food Journal,
622 Albee Building, Washington, D. C.

A THOROUGH investigation of the prices of foods and other necessities of life throughout the entire country has been ordered by the Attorney General. The inquiry is undertaken, the Attorney General announces, because in many sections prices are too high and retailers' profits far out of proportion. The work will be conducted under the direction of William J. Burns, head of the bureau of investigation.

Retailers all over the country, asserted Mr. Daugherty in making public his decision to order an investigation, "have an understanding" as a result of which prices have been kept up almost to war levels.

Because of the fact that many of the offenses which the Department of Justice expects to uncover will be entirely within a state and, therefore, not subject to Federal action, the Attorney General is seeking the co-operation of state authorities in dealing with profiteering.

Illegal practices of trade associations in artificial control of prices and unjustified price increases have spread into many lines of retail trade, it was declared at the Department of Justice. The decision of the United States Supreme Court in the Southern Hardwood Lumber Case, in which the practices of trade organizations was one of the points in controversy, led the department to the decision to continue its crusade against the alleged illegal practices of such associations. A cursory investigation by agents in various parts of the country, it was said, had shown that violations of law are prevalent in the retail trade in the sale of meats and other food commodities, as well as others.

Partial evidence has been received by the department, it is claimed, showing that retail dealers in many lines have conspired to fix prices in retail sales in plain violation of the anti-trust laws. Too many retail stores exist in certain lines, it was said, making necessary unreasonably high prices for the commodities sold for their existence.

The investigation to be made by the Department of Justice will go into variations in prices for standard commodities

in various sections of the country, as well as a comparison in each locality of cost prices to the dealer and the prices quoted to the consumer.

A personal letter has been sent by Attorney General Daugherty to the attorney generals of the various States, in which is outlined the work which the department proposes to undertake and asks for local co-operation.

"The two principal offenses which I now have in mind are those against the liquor and the food and fuel supply laws," Mr. Daugherty wrote in discussing the enforcement of Federal laws. "There is no disposition on the part of the Federal Government, as represented by the Department of Justice, to evade any responsibility in respect to its duties, but the states, I believe, should first enforce their laws in regard to the violations and the Federal Government promptly co-operating with the states enforce the laws which should be enforced by the Federal Government.

"As many of these infractions are intrastate cases, there will arise doubtful questions whether a violation of the law in the matter of fixing prices by certain local retailers is one over which the Federal Government has jurisdiction. With this subject in mind and the object in view to bring about the most harmonious, as well as coherent, working arrangement between state officials and those charged with the Federal enforcement, I respectfully suggest that you, as the chief executive law officer of your state, call a conference of the prosecuting attorneys of the several counties of your State for the purpose of discussing plans to bring about the object desired."

As a result of the Supreme Court's decision, the Department of Justice is shaping up the policies to be followed in the enforcement of anti-trust laws relating to open price associations and similar organizations. In line with the decision in the Hardwood Case, interpreting the anti-trust laws as applied to open-price associations, the Attorney General has announced that trade associations cannot divide territory in the sale of commodities; cannot fix prices through the interchange of information as to the supply, stocks on hand, production, volume of orders or

other data; or cannot do indirectly what it would be unlawful for the organization to do directly.

Since the handing down of the court's decision in the hardwood case, the Attorney General said, the department has been considering the practices of various associations with a view to classification to determine which practices are illegal and which will be permitted under the Government's interpretation of the laws. Practically all associations whose attention has been called to the questionable character of their practices, he said, have abandoned these at the suggestion of the Government, and only a small per-

centage have signified their intention of contesting the legality of those of their practices thought illegal by the department.

An investigation of the practices of trade associations was made some time ago by the Department of Commerce, which covered the activities of some 1,800 organizations. Only about 150 of these, said Secretary Hoover in announcing the results of his inquiry, had been found to be engaged in practices which might be without the scope of the law, and of this number probably the greater part have since changed their procedure so as to enjoy a legal standing.

Supreme Court Upholds Government in Beech-Nut Case

But Affirms Right of Company to Refuse to Sell Dealers Not Observing "Fair Resale Prices"—Modifies Trade Commission Order

THE United States Supreme Court has upheld the contentions of the Government in the case of the Beech-Nut Packing Company, involving price maintenance, but does not agree in full with the remedial order of the Federal Trade Commission and has sent the case back to the court below for a modification of the order in line with its own decision. Justice Day delivered the opinion of the Court, dissenting opinions being announced by Justice Holmes, Justices McKenna and Brandeis concurring, and by Justice McReynolds.

The Federal Trade Commission required the corporation, engaged in the manufacture and sale of food and other products throughout the United States, to cease and desist from carrying out a plan of resale of its products. The order provided that it "cease and desist from directly or indirectly recommending, requiring or by any means bringing about the resale of Beech-Nut products by distributors, whether at wholesale or retail according to any system of prices fixed or established by respondent, and more particularly by any or all of the following means:

"1. Refusing to sell to any such distributors because of their failure to adhere to any such system of retail prices;

"2. Refusing to sell to any such distributors because of their having resold respondent's said products to other distributors who have failed to adhere to any such system of resale prices;

"3. Securing or seeking to secure the co-operation of its distributors in maintaining or enforcing any such system of resale prices;

"4. Carrying out or causing others to carry out a resale price maintenance policy by any other means."

Commenting on the decision, Charles Wesley Dunn, counsel for the Beech-Nut Packing Company, explained the Supreme Court's order in the following statement:

"The entire court sustains the right of the Beech-Nut Packing Company to decline to sell its products to dealers who do not observe the fair resale prices suggested by it, holding that such refusals to sell, per se, effected by a private manufacturer in pursuance of his own independent discretion, and without any purpose to create or maintain a monopoly, are not violative of Section 5 of the Federal Trade Commission Act.

"The court directs that the order of the Federal Trade Commission be modified whereby the prohibition of such refusal-to-sell conduct, per se, set forth therein, is wholly stricken out. The principal issue involved in this case, from the beginning, was whether the commission had the power, under the Act creating it, to forbid the Beech-Nut Packing Company or any other manufacturer from refusing to sell its goods to dealers who fail to observe suggested prices, where such refusal is made in pursuance of

the manufacturer's independent discretion, without any purpose to create or maintain a monopoly.

"The entire court upholds this right of refusal and denies the power of the commission to limit it. The four dissenting members of the court hold that the order of the commission should have been wholly set aside and not modified even to the extent indicated in the light of the record in issue.

"As soon as I have received a complete copy of the opinion of the Court, the substance of which was conveyed to me over the telephone by the clerk of the court, I will issue a comprehensive explanatory statement for the information of manufacturers and dealers. The main point to observe, however, is the affirmance of the refusal-to-sell policy, per se, under the Federal Trade Commission Act, just as it was affirmed in the Colgate case under the Sherman Act."

In Line with Colgate Decision

In the Colgate case it was held that a producer could announce that he would not sell goods to anyone who did not respect prices suggested by the producer, provided that there was no contract between the producer and the customers which obligated the latter to maintain a fixed price.

In the Beechnut case it was stipulated that there was no contract, but it was contended by the Government that the same result was accomplished by the coercive effect of the producer's announced intention not only that he would not sell to anyone who cut prices, but he would not sell to anyone who refused to co-operate with him in maintaining prices.

The Supreme Court sustained the Government's contention that as a result of the policy of the Beech-Nut Company that co-operation between the producer and the wholesalers and the retailers did result to the extent that all competition in prices was eliminated and that such a restraint of trade was in itself an unfair method of competition.

The Court felt, however, that the order entered by the Federal Trade Commission against the corporation was too broad and it accordingly instructed the lower court to modify the order. The modification, however, does not affect the essential principle of the case which is that a price fixing scheme is an unfair method of competition and a restraint of trade even though there be no contracts between the parties which obligated them to maintain the prices fixed by the producer.

Trade Commission Order Too Broad

The majority opinion of the court stated that under the facts established it had no doubt of the authority and power of the Commission to order a discontinuance of practices in trading, such as are embodied in the system of the Beech-Nut Company.

"We are, however, of opinion that the order of the commission is too broad," the court continued. "The order should have required the company to cease and desist from carrying into effect its so-called Beech-Nut Policy by co-operative methods in which the respondent and its distributors, customers and agents undertake to prevent others from obtaining the company's products at less than the prices designated by it—(1) by the practice of reporting the names of dealers who do not observe such resale prices; (2) by causing dealers to be enrolled upon lists of undesirable purchasers who are not to be supplied with the products of the company unless and until they have given satisfactory assurances of their purpose to maintain such designated prices in the future; (3) by employing salesmen or agents to assist in such plan by reporting dealers who do not observe such resale prices, and giving orders of purchase only to such jobbers and wholesalers as sell at the suggested prices and refusing to give such orders to dealers who sell at less than such prices, or who sell to others who sell at less than such prices; (4) by utilizing numbers and symbols marked upon cases containing their products with a view to ascertaining the names of dealers who sell the company's products at less than the suggested prices, or who sell to others who sell at less than such prices in order to prevent such dealers from obtaining the products of the company; or (5) by utilizing any other equivalent co-operative means of accomplishing the maintenance of prices fixed by the company."

Justices Holmes, McKenna and Brandeis Dissent

In the opinion of Justice Holmes the corporation is not creating a monopoly. "The worst that can be said, so far as I see," he added, "is that it hinders competition among those who purchase from it. But it seems that the very

foundation of the policy of the law to keep competition open is that the subject matter of the competition would be open to all but for the hindrance complained of. I cannot see what that policy has to do with a subject matter that comes from a single hand that is admitted to be free to shut as closely as it will. And to come back to the words of the statute, I cannot see how it is unfair competition to say to those to whom the respondent sells and to the world, you can have my goods only on the terms that I propose, when the existence of any competition in dealing with them depends upon the respondent's will. I see no wrong in so doing, and if I did, I should not think it a wrong within the possible scope of the world unfair. Many unfair devices have been exposed in suits under the Sherman Act, but to whom the respondent's conduct is unfair I do not understand."

The above was concurred in by Justices McKenna and Brandeis.

"Under the circumstances constraint upon the freedom of a merchant can only result from withholding trade relations," declared Justice McReynolds. "These, when acting alone, respondent has the right to assume or decline at pleasure, there being neither monopoly nor attempt to monopolize. And the exercise of this right cannot become an unfair method of competition because some dealers cannot obtain goods which they desire, and others may be deterred from selling at reduced prices. If a manufacturer should limit his customers to consumers he would thereby destroy competition among dealers, but neither they nor the public could complain. The exercise of a right does not become an unfair trade method merely because it frustrates the competition which might otherwise exist."

Urge Free Trade in Oils

Vegetable Oil Producers Claim Emergency Tariff Has Raised New Foreign Barriers for Their Product

PROTECTION against protection, and the restoration of all oil seeds and vegetable oils to the free list, was asked of Congress last month by John Aspegren of New York, president of the Portsmouth, Va., Cotton Oil Refining Corporation, and the Gulf & Valley Cotton Oil Company, Ltd., of New Orleans, and general manager of the International Vegetable Oil Company of Atlanta, who appeared before the Senate Finance Committee during that body's hearings on the tariff bill.

After having asked Congress for protection some months ago, when the emergency law was under consideration, six month's experience under that measure has convinced the vegetable oil producers of this country that only by free trade can they keep their hold on what few foreign markets are now left to them. "We have had six months' experience with this tariff," declared Mr. Aspegren, "and now I come before you and ask you for Heaven's sake please to protect us against this protection." The vegetable oil industry is practically unanimous in this demand, he said.

Previous to the war, a large majority of Oriental oil seeds and vegetable oils were exported to Germany by direct ships, but during the war were brought to this country and the finished products manufactured here and shipped to Europe. After the war trade continued very largely in these channels, although England and Holland tried to make inroads on it. Since the emergency tariff law was adopted this entire trade with the exception of the Philippin Island production has been lost.

Only about \$125,000 a year is being secured by the Government from the duties on vegetable oils, against the claims of \$25,000,000 a year "made by the people advocating the tariff," said Mr. Aspegren.

"Right after the war," he continued, the oleomargarine

industry of Germany was bought up practically in its entirety by the Dutch. I understand two people in Rotterdam practically control this entire German industry now, besides the Dutch industry. In England, similar concentrations took place, and you are undoubtedly familiar with the tremendous concentrated growth, for instance of Lever Brothers. On account of the Emergency Tariff, we in this country are practically excluded from bidding on the Oriental product. And the concentrated European buying, realizing its monopoly, has since then been practically in exclusive control of the price-making factors of the world. It has bought the entire Oriental output at as low a price as could be worked, limited only by the food value of the beans and nuts themselves in the Orient. In exclusive control of this entire supply, they have afterwards practically dictated to us the prices at which we were to sell to them our export surplus of oils and fats, and I need not say that the result has not been to the advantage of this country.

"We have been denied any part whatsoever in the markets of the world in the price-making of our own products such as cotton oil and lard. Our export surplus had to be sold at values that thus have been artificially made for us, and naturally the price obtained for the export surplus has made the value similarly low on what we have sold for domestic purposes. Furthermore, right after we passed the emergency bill in this country, Europe took the cue from us, and France doubled the duty on cotton oil, and Italy trebled it, so that, for instance, to-day the duty on cotton oil entering Italy is three times the duty on Oriental soya bean oil that has been made and manufactured in England, Holland and Denmark."

Promising Development of Soya Bean Sauce

Studies on the Protease of the *Aspergillus Oryzae*-*Flavus* Group and Its Role in Shoyu Brewing

Editor's Note.—The author of this article has been engaged for some time in experimental work in the laboratories of the Pathological Division of the Bureau of Animal Industry and the Microbiological Laboratory of the Bureau of Chemistry, U. S. Department of Agriculture. He is studying in Europe at the present time.

By KOKICHI OSHIMA

SHOYU (soya bean sauce) is a most important seasoning in Japan and China; where it is widely used instead of vegetable or meat extract and salt. It is a fermented product made from soya beans, wheat and salt which are acted upon by *Aspergillus flavus* and related forms. The finished product contains about 20 per cent sodium chloride, 5 per cent glucose and 3 per cent protein cleavage products. Being highly palatable, nutritious and cheap, it will probably be used more and more extensively in many countries.

It is manufactured by traditional methods, requiring one or two years for "ripening" the product. To shorten this period seems a desirable improvement. This period may be divided into two stages: the "koji" stage of mold growth; which is followed by the "moromi" stage during which fungi have ceased growth and their enzymes are active in salt solution, save for incidental activities of yeasts and bacteria.

Of course, in the "moromi" stage several proteases exist, originating from various microbes. Their relative importance in protein digestion is not exactly known at present. But from analyses of "moromi" at different ages, and from the fact that *Aspergillus flavus* and related forms which are used in "shoyu-koji" preparation, produce a very strong proteolytic enzyme, it may be assumed that the protease from such *Aspergilli* is the most important one. Little is known about the protease.¹

The author has endeavored to study further the proteolytic activities of this protease, comparing it with those of other proteolytic enzymes and using several protein substances with a view to obtaining data applicable to the better understanding and improvement of shoyu brewing.

Experimental Materials

Fungus protease—Pure cultures of *Aspergillus* strains on cooked wheat bran were extracted with distilled water and the protease enzyme was precipitated with alcohol. The molds used here were studied previously¹ with regard to their microbiological natures and all are strong protease producers with the following remarkable differences:

Mark of strain	Group name	Amylase production	Growth
AOold	<i>Aspergillus oryzae</i>	strong	quick
APb	<i>A. effusus</i>	very weak	slow
AO3b	<i>A. parasitiosus</i>	very weak	quickest

Glycinin—This was prepared by the method of Osborne² from yellow mammoth soya beans raised at Arlington Farms, Virginia. Glycinin constitutes the bulk of the soya bean protein, hence a study of its cleavage by a number of proteolytic enzymes may yield data which will throw light on the digestion of protein in "shoyu moromi."

Casein—Crude casein was purified in the usual way by solution in sodium hydroxide, precipitation with hydrochloric acid, washing with alcohol and ether and finally drying.

Witte pepton and edestin were brought from Eimer, Amend & Company.

Preliminary Digestion Experiments.

A number of preliminary experiments showed that the protease preparation from the mold AOold can digest

Witte pepton, casein, edestin, glycinin, beef protein and egg white. For comparison, similar tests were made with trypsin (Fairchild's) and pepsin (Parke, Davis & Company); likewise there were numerous controls. The extent of digestion was determined mainly by measuring the amount of amino nitrogen liberated in the usual Van Slyke apparatus. Ammonia was determined by the Folin and Denis direct nesslerization method;³ for the tryptophan test, bromin water was used. In general, the amount of amino nitrogen liberated during digestion was comparable to the amount liberated under similar conditions by trypsin. In neutral solution the protease retained its activity at least for 9 days at 40 degrees C. where trypsin lost its activity. No special enzyme to produce ammonia was recognized.

Further Study of Protease Activities

Digestion experiments of pepton and various proteins were made with protease from three strains of the *Aspergillus* group at various hydrogen ion concentrations, which were regulated with sodium phosphate, hydrochloric acid, etc., according to Michaelis and David-

son.⁴ Amino nitrogen was estimated with Van Slyke's method and hydrogen ion concentration with Clark's colorimetric method.⁵

The protease preparation from the mold "AOold" was

¹Oshima, K., Data soon to be published.

²Osborne, T. B., in E. Abderhalden, Handbuch der Biochemischen Arbeitsmethoden, Berlin, 1910, ii, 313.

³Folin, O., and Denis, W., J. Biol. Chem., 1916, xxvi, 486.

⁴Michaelis, L., and Davidson, H., Biochem. Z., 1911, xxxvi, 280.

⁵Clark, W. Mansfield, The Determination of Hydrogen Ions, Baltimore, 1920.

SOYA BEANS, THE OPPORTUNITY OF THE PRODUCER AND MANUFACTURER OF THE SOUTH

The large annual importation of soya beans in this country indicates the ready market for this product that has already developed. Government experts are optimistic regarding the possibilities of a much larger crop for the South in the future. Already this vegetable is used in the preparation of oil, soap, paints and feed material and Mr. Oshima's enlightening article throws out still another suggestion for efficacious utilization of this valuable product.

used. The digestion period was four hours in a 40 degrees C. water bath. A typical experiment follows:

The digestion substrate	pH value at optimum digestion
2% Witte pepton	5.6
2% Witte pepton in 3n NaCl	6.0
2% edestin	5.2
2% casein	6.2
2% glycinin (suspended)	indefinite
2% glycinin in n/2 NaCl (dissolved)	5.2—5.8

Digestion experiments of pepton and edestin with proteases from strains APb and AO3b showed also almost the same optimum pH value. The limits of pH value of these proteases were wide, i.e., between pH 3—pH 9 recognisable digestion took place.

Addition of sodium chloride decreased pepton digestion from 44.6 per cent to 34.7 per cent of digestibility in the presence of 16 per cent NaCl, with a gradual decrease of digestibility upon the gradual increase of salt content. Glycinin was digested very irregularly in water medium, owing to the different coagulation in the acid or alkali reaction. But in the half normal sodium chloride solution with different pH values, which dissolved glycinin pretty well, the digestion was regular and stronger.

Different Optimum pH Indicated by the Different Methods of Protease Test

J. Wohlgemuth⁶ tested protease in Taka diastase with the Fuld-Gross method and found that it acts stronger in weakly alkaline or neutral than in a weakly acid solution. Szanto⁷ studied the same enzyme with the same method and concluded that neutral reaction to phenolphthalein was the best. My experiment with the Fuld-Gross and my method gave the same result, i.e., the optimum reaction was pH=8.4 whereas the optimum by amino acid determination under the same conditions was pH=6.2. Both methods use casein solution, undigested casein being precipitated by adding acetic acid for the Fuld-Gross method, magnesium sulfate and nitric acid mixture for my method. The result may indicate the desirability of using both methods simultaneously.

Influence of Cooking on Glycinin Digestibility

In "shoyu" brewing soya beans are generally cooked 2 to 3 hours in open kettles. Cooking in the autoclave at 15 pound pressure for 1½ to 2 hours is coming into vogue. Of course, under these conditions, the soya beans become softer and better adapted to mold growth and digestion. To determine the influence of cooking on the digestibility of glycinin itself by protease AOold, experiments were made with aqueous suspensions and salt solutions of glycinin, uncooked and cooked under atmospheric, and 15 pounds pressure with different periods.

As the result, there was a very distinguishable difference between the digestibility of cooked and uncooked proteins, no matter whether the concentration of the salt solution, or the period and temperature of cooking were varied. Is not this due to the destruction of anti-protease? But no specially favorable result was obtained by longer or higher temperature cooking. On the contrary, this made the digestion worse, probably as a result the more firm coagulation of glycinin.

On the Optimum Reaction of Amylase and Protease of *Aspergillus Oryzae*

Sherman, Thomas and Baldwin,⁸ found that the optimum pH of amylase of *Aspergillus oryzae* is 4.8 by digestion for 30 minutes at 40 degrees C. Practically, however, many believe that amylase acts best in neutral starch solution. The reason was easily explained by some blank tests on the amount of hydrochloric acid required to change the pH of a 2 per cent soluble starch solution through a given pH range and the amount of hydrochloric acid required to

cause the same change in a 2 per cent Witte peptone solution. The indicator method was used for the pH measurements, with frequent controls by the electrometric method. As might be expected, the buffer action of the peptone, absent in the starch, necessitated much more acid: thus, to change 100 cc. of 2 per cent soluble starch solution from pH 7 to pH 6, 0.4 cc. of n/20 HCl was sufficient; but 30 times this quantity was required for a similar change in 100 cc. of 2 per cent Witte peptone solution. The similarity of the pH for optimum action of the amylase and protease is of practical and theoretical interest in the study of the enzymic processes taking place in "shoyu moromi."

Summary

1. Proteolytic enzymes prepared from *Aspergillus oryzae* group can digest native proteins such as beef muscle, egg white, glycinin, edestin and casein as well as pepsin with the production of amino acids.

2. The optimum reaction of this protease, as measured by the production of amino nitrogen by the digestion of pepton and proteins at 40 degrees C. is pH 5 to 6. The optimum reaction is influenced by a number of factors, among the more important of which is the physical state of subdivision of the protein substrate. The glycinin digestion is favored by the presence of sodium chloride because the salt keeps the protein in solution; it is not favored when the protein is suspended in pure water. Obviously, in determining the optimum condition such factors, in addition to the pH must be considered.

3. The optimum reaction for amino nitrogen liberation when protease AOold digests casein is pH 6.2. The optimum reaction for protease and pepton formation (Fuld-Gross method) when protease AOold digests casein is pH 8.4.

4. The optimum pH is practically the same for protease and amylase from *Aspergillus* species. Widely varying quantities of acid may be required to bring mixtures containing varying proportions of protein and carbohydrate from one pH to another.

5. Sodium chloride, in high concentrations; i.e., 16.20 per cent, inhibited but did not entirely prevent digestion of pepton and glycinin by protease AOold.¹⁰ At low concentration, i.e., 2 per cent, sodium chloride favored glycinin digestion.

6. Cooking glycinin rendered it more digestible, but because the heat coagulation of the protein introduces mechanically disturbing factors, no quantitative relations could be detected between time and temperature of cooking and increase in digestibility.

Acknowledgment

The work was done in the laboratories of the Pathological Division of the Bureau of Animal Industry and the Microbiological Laboratory of the Bureau of Chemistry, U. S. Department of Agriculture. The author is greatly indebted for the facilities provided and especially to Drs. William N. Berg, Margaret B. Church and Charles Thom.

Many thanks are due to Dr. Jokichi Takamine, in whose laboratory many practical experiments were made on Taka-diastase.

The "Ptomaine" Delusion

Real sickness from poisoned food is rare, according to Rosenau, who reports that in 22 years, but 150 persons were reported ill from poisoning by botulism with 111 deaths.

Vaughn and other authorities say there is not and never have been statistics and scientific proof that such a thing as ptomaine poisoning exists, and protests against this conception which fact should be made widely known.

Too many individuals still labor under the ptomaine delusion; too many diseased gall bladders, appendices, and "what not" are overlooked until too late.

Home "put up" foods are responsible for most cases recorded, which is not an argument against doing so, but is an indication for more care.

⁶Rogers, L. A., Berg, W. N., Potteiger, C. R., and Davis, B. J., Bureau of Animal Industry, Bulletin 162, 1913, 30.

¹⁰In this respect the *Aspergillus* protease AOold is similar to trypsin. The proteolytic action of pepsin and trypsin when added to sterilized skim milk containing 18 per cent sodium chloride, during a storage period of 75 days at -7°C (20°F) was demonstrated. (9)

⁶Wohlgemuth, J., Biochem. Z., 1912, xxxix, 324.

⁷Szanto, O., Biochem. Z., 1912, xliii, 31.

⁸Sherman, H. C., Thomas, A. W., and Baldwin, M. E., J., Amer. Chem. Soc., 1919, xli, 231.

QUESTIONS AND ANSWERS

On Problems of Nutrition and Diet for Dietitians and Domestic Science Teachers

Conducted by Bertha N. Baldwin

Editor's Note.—Readers are invited to send in questions to be answered in this department, which is prepared to act as a clearing house for current information—answering specific questions and problems suggested by our readers.

Value of Evaporated Milk in Diet

"What is the value of evaporated milk in the diet; in infant feeding?"—J. P. C., Ontario, Can.

EVAPORATED milk has a distinct and definite place as a food. A supply on the shelves is a bank account against the only too frequent strikes, storms and like emergencies that prevent the daily supply of fresh milk reaching the consumer. For travel, camping and other situations where bulk and portability are important points, it is excellent. In the cans it keeps indefinitely and needs no ice and so solves the milk question for those whose space and time for housekeeping is limited. Evaporated milk is of necessity pure and clean because any defects in raw milk are intensified by the sterilization and would produce an odor and taste that would render the milk unsalable. Any spoiled milk is detected before it reaches the consumer.

The Effect of Heating Milk

The question of the nutritive value of evaporated milk depends on two things—the value of the raw milk used, and the effect of the condensing. Fresh milk varies in its composition according to the food of the herd, whether it is summer pasture or winter fodder. Any milk is of course subject to these variations. When whole milk is used for evaporating, all the constituents of the milk remain but they may be changed by the processing.

The essential points in evaporating milk are: heating to boiling point, evaporating under reduced pressure, cooling, canning, sealing and sterilizing at 226-240 degrees F. for various lengths of time from twenty minutes to two hours, and a final shaking to give a homogeneous smooth body. Heating is the one process which might affect the milk, in combination with aging.

Milk when it is boiled shows signs of a change in composition. The casein does not form the usual large curds but instead, finer and softer curds. If boiled milk is fed regularly it usually produces constipation and general malnutrition and may result in such disorders as scurvy.

Careful experiments have been carried out to find just what the deficiency in heat treated milks is due to. Experiments do not entirely agree about the results, probably because the milk was heated different lengths of time by different methods. In general, it is considered that fat-soluble A vitamine is destroyed and casein and mineral salts are changed. McCollum and Davis decided that the deficiency is due to a change in the casein (curd) of the milk. (*J. Biological Chemistry* 23, 1915.)

An Experiment with Evaporated Milk

An interesting and careful experiment by Daniels and Loughlin should be cited in this discussion (*J. Biological Chemistry* 44, 1920). Pasteurized, condensed and evaporated milks—three brands of the last—were fed to young

rats and the growth curve (plotted from the weights) watched. The results were compared with the normal growth of rats on fresh milk. "On Brand A (evaporated milk) animals made almost no growth gains and died after a few weeks. On Brands B and C slightly better results were obtained, the animals gained slowly and lived for somewhat longer periods, but all ultimately died in a miserable condition—emaciated, with roughened coats but with no signs of xerophthalmia (eye condition resulting from lack of fat-soluble A). The somewhat better results with Brands B and C may possibly be explained by the fact that the animals on these were about two weeks older when the experiment was begun."

Neither Vitamine A or B Destroyed

The evaporated milk diet was then modified to find out what element had been changed. The results seemed to point to the fact that neither vitamine A nor B had been destroyed. An insoluble precipitate on the sides and bottom of the cans containing the milk suggested a change in inorganic salts. "It is well known that boiling brings about changed relations in the organic complexes of the milk, resulting in an increase of the insoluble calcium and magnesium salts, especially calcium phosphate, at the expense of the soluble forms." These insoluble calcium salts were not thrown away in canning the milk, for the analyses of evaporated milk do not show this loss. Following experiments proved that because the calcium was insoluble it remained in the bottom of the dish and was not eaten. When the milk was fed in the form of a paste made with cornstarch which kept the precipitate from settling to the bottom, the animals showed growth equal to that on raw milk.

The authors conclude that during the process of heating, insoluble calcium salts are precipitated. They may be lost, either separating out or adhering to the container. Neither casein nor vitamines A or B seem to be affected. This experiment is discussed in some detail as it gives one explanation as to the deficiency of evaporated milk. Other authorities may not agree with the conclusion, but one thing at least seems certain from all experiments, animals do not grow on evaporated milk as they do on fresh milk.

The Place in the Diet

As was stated above, evaporated milk has a definite place in the diet, but it is not the equivalent of fresh milk because it is changed in some way in the process of evaporating. It has enough merits, however, to stand on its own, and does not need to be advertised as equal to the raw article. Evaporated milk is a food that contains protein, fat, sugar, minerals and vitamine, and is of worthy calorie value. It needs to be supplemented with foods which cor-

rect its deficiencies as a complete food. In a liberal dietary these deficiencies are probably corrected.

	Evaporated milk	Condensed milk	Whole milk
Protein percentage.....	9.6	8.8	3.3
Fat "	9.3	8.3	4.0
Sugar "	11.2 (milk)	54.1 (milk cane)	5.0 (milk)
Water "	68.2	26.9	87.0
Minerals "	(1.7)	(1.9)	(.7)
Calories per oz.....	47.3	92.5	19.6
Minerals per 100 calories.	{ Slightly higher than whole milk Lower than whole milk		
Vitamines—A	{		
B	{ Probably same as for condensed		
C	{		
		xx	xxx
		x	xxx
		o	xx

For all cooking purposes evaporated milk can be considered quite equal to fresh. For all purposes it is better than impure dirty milk from questionable sources, and it can be easily supplemented with fruits and vegetables. Its tendency to produce constipation must be guarded in planning the diet.

Evaporated Milk for Infant Feeding

The child needs every food factor represented in his diet even more than the adult. Protein, minerals and vitamins especially must be given in a form which can be assimilated, fat and sugar can be more easily added to the food. So any process which disturbs the protein, minerals or vitamins in milk makes it less good for children. Until it is known definitely what factor is changed causing the tendency to produce constipation must be guarded against in planning the diet.

It is assumed that mothers milk is chosen in preference to anything else. After that comes probably good fresh cows' milk. The next choice (the second choice in cases where fresh milk is not good) is evaporated or dried milk. In some cases of digestive disturbances, the physician may prefer evaporated milk to the fresh. "Condensed (both kinds, but unsweetened preferably) milk is good when cows' milk casein is not digested—the consistency of the coagulum of condensed milk casein in the infant stomach greatly resembles that of human milk." (Sheffield, "Diseases of Children," C. V. Mosby Co., 1921.)

Whenever evaporated milk is used entirely or in part for infants, it must be supplemented by orange or tomato juice to supply the antiscorbutic vitamin (water-soluble C). As soon as possible other articles of food as egg yolk and vegetable purees should be added to the dietary. Cod-liver oil protects against rickets and is rich in fat-soluble A. Evaporated milk is highly satisfactory as a source of water-soluble B.

Temperature and Keeping Qualities of Canned Goods

"Does the temperature of the storage place have any effect on the keeping qualities of canned goods?"—J. H. E., Nebraska.

The question of the temperature of the storage place for home canned goods seems to be important. Recently, a paper was published giving the results of an investigation that was undertaken "for the purpose of determining the effect of different conditions of storage upon the keeping quality of certain vegetables canned by the one period cold pack method." Beet greens, beets, green string beans, wax beans, carrots, corn, tomatoes and pumpkin were used. The vegetables were properly prepared, blanched with steam, cold dipped, packed and processed. Different lengths of time for the processing were used for practically each vegetable. The authors had found that the process periods advocated

in bulletins from various states differed, so they extended their investigation to include the relation between time of processing and keeping qualities.

After cooling, the cans were stored at the temperatures to which canned vegetables are subjected in the home—those of the vegetable cellar and of the kitchen. One series was kept in a cellar 32-73 degrees F. for at least four months; a second series at kitchen heat, 82-90 degrees F. for ten days; a third series at the temperature of the first series but for ten days only in order to compare the results with series two.

The data showed that storage at kitchen temperature for ten days resulted in far greater spoilage (33 out of 62 jars) than storage at cellar temperature for four months (5 out of 60 jars) or storage at cellar temperature for ten days (4 out of 53 jars). The quality of the edible jars varied. Of the 29 edible jars at kitchen temperature for ten days, 14 graded below "good" in flavor; of the 49 stored at cellar temperature for ten days, 5 graded below "good"; and of the 55 stored four months at cellar temperature, 5 graded below "good." Therefore, about one-half of the vegetables stored at kitchen temperature spoiled, and only one-twelfth of those stored at cellar temperature. The former deteriorated in flavor even when they were not spoiled more generally than the latter.

The authors conclude that the temperature of storage should be a factor in determining the optimum time required for processing in order to decrease the spoilage; and that if possible the canned goods should be stored in a cool place immediately after canning and thorough cooling. (J. Home Economics, October, 1921.)

Commercially, canned goods have to withstand wide variations in temperature in the shipping and storage. In general they are processed at a much higher temperature than home-canned goods. Even though they can stand rougher conditions without spoiling, it will do no harm to keep them reasonably cool when possible.

Nutritive Value of Gelatin

"What is the nutritive value of commercial gelatin—is there more than one quality of commercial gelatin?"—A. F.

Commercial gelatin is made from animal bones and tendons. There are several grades. The highest grades are used in the granulated gelatins and prepared jelly powders for food; lower grades are used for manufacturing purposes and glue.

The best grade of gelatin "jellies" more quickly than the lower grades. This property offers a rough kitchen test as to the value of the gelatin used for cooking purposes.

Gelatin is a protein and chemically differs but little from other proteins. This difference is extremely important, however, when it comes to replacing other proteins with gelatin alone. Proteins are built up from a number of chemical units called amino acids, and in digestion in the body are broken down again into these units and absorbed as such into the blood. All of these amino acids seem to be important, but certain ones are particularly so for maintaining life and supporting growth. Chemical analysis shows that two of these more important amino acids are lacking in gelatin—tryptophane and tyrosin, and others as cystin and histidin are furnished in only very small proportion (Sherman, "Chemistry of Food and Nutrition," Macmillan). Hence gelatin is called an incomplete protein.

However, in a mixed diet, gelatin is an important source of protein and serves to protect the complete proteins from being used where gelatin would serve as well, saving them for the special work which they only can do. It gives protein in an attractive and digestible form, and in some disease conditions is most useful as a means of incorporating other foodstuffs into the diet.

Cacao and Its Commercial Possibilities

Properly Selected Beans Capable of Yielding Valuable Food Product in Chocolate and Commercial Cocoa

By ALVIN FOX, B. Sc.

ALMOST all the cacao grown belongs to the species *Theobroma cacao*, which has been separated into three classes: Criollo, Forastero and Calabacillo, under each of which several varieties are recognized. Two varieties are grown for commercial use, known as *Theobroma* and *Theobroma Penagone*. It is difficult, however, to distinguish these varieties because, usually, there are many intermediate strains due to cross pollination. The shape and marking of the pods are characteristic of the different types, but this cannot be relied upon entirely, because frequently the shape and color of the seeds show differences which cannot be detected from the outside.

The shape of the pure Forastero bean is flat and the color dark or purple. In the Criollo, the bean is thicker and roundish in form, while the color is white or pink. The bean of the Calabacillo is smaller and flatter in shape than that of the Forastero and the color is darker.

The pods of the *Pentagona* or Alligator cacao are typical. The color is greenish to dull yellow when ripe. The seeds are large, more nearly round than in the Criollo and of a pure white color, which turns dark soon after being cut open.

The Bicolor beans are of no commercial value, because of their probable use as a hardy, vigorous stock on which the commercial varieties may be grafted. The pod is smaller than that of the average and the shape is too nearly round. The leaves are larger than those of the commercial cacao and white or gray in color on the under side; hence its name is bicolor. There is another variety of wild cacao that may possibly be used for grafting stock, known as the *Angustifolium* or Monkey cacao, which, like the former, is of no commercial value.

Different Varieties of Different Soils

The important practical consideration in regard to varieties is that some are hardier and more suitable to cultivate on certain soils and under certain climatic conditions, and some yield a much higher grade of bean than others. The highest grade of bean is produced by the *Pentagona* but, unfortunately, that is not hardy, and it readily succumbs to the various cacao diseases prevalent in the tropical countries. It should not be planted except in locations well sheltered from the wind. The soil should be well cultivated and manured and water should be available for irrigation during prolonged droughts.

It is very probable that under such favorable conditions the *Pentagona* grafted on the Bicolor or the Forastero might yield returns beyond the expectation of the average planter, but it would be almost sure to fail under ordinary estate conditions existing on the average cacao plantations to-day.

The Criollo stands next to the *Pentagona* in quality. The bean is slightly inferior, but the tree is hardy enough to grow and bear well under ordinary estate conditions where soil and climate are favorable. It should not be planted, however, unless the conditions are favorable and the plantation well cared for.

The Forastero comes next as a desirable type and it is cultivated more extensively than any other. It is inferior in quality to the two former, but it is vigorous and hardy, for which reason it is well liked by the planters, and especially by managers of cacao estates.

The Calabacillo produces the lowest grade of bean of any of the types given. Its only redeeming feature is

that it will thrive on stiff clay soil and in dry locations, where the other varieties would fail to grow. Yet that is not an adequate excuse for planting it, because it would be much wiser to refrain from planting in such locations.

While there are classes and varieties of cacao as described above, it is difficult to secure pure strains from the average cacao plantations, because of the continued cross-pollination; and while that has certain disadvantages, it also has a practical value. It is well known that the Criollo needs much less time to cure than the Calabacillo, and it is obvious that in sweating pure strains of the two together it would make a very uneven grade. But with the mixtures found on the average cacao estate, this is not so serious and the grade of beans produced can be made fairly uniform, if the trees are well cared for. In fact, manuring and cultivation are of great importance in producing uniform grades of cacao beans for the commercial trade, as well as drainage and the right elements of commercial fertilizers, according to the condition of the soil.

Gathering and Curing

After the pods of cacao are picked from the trees, slits are made in the sides with sharp knives. The pods are then broken open with the hand, and the beans and their enveloping pulp are scooped out and carried to the sweating house to go through a process of fermenting. The fermentation makes the pulp easily removable and also improves the quality of the kernel.

Every day the heaps are turned over with a wooden shovel in order to let sufficient air in, so that the sweating may be thorough. After being treated in this way for five or six days, the beans are taken from the sweating house and are taken to sieves or troughs and stirred under water until they are clean and smooth. They are then dried, either in the sun or by some artificial methods. Finally, in order that the beans may be protected against mold and fungus growths, they are finished or polished. After this is done, they are then placed in bags or barrels and shipped to commercial markets or directly to cocoa manufacturers.

In the process of manufacture, the seeds are roasted and the shells are removed. The kernels or nibs are placed in a grinding mill with steam-heated rollers. Because of the heat the cocoa mass flows out of the mill in a semi-liquid state and can be run into deep pans and allowed to harden.

If cocoa is to be made, the mass is remelted and placed in a great press which extracts a large proportion of the fat. The substance is then taken from the press and reduced to a fine powder in a mill consisting of a pair of rollers armed with teeth. Before it is placed on the market the powder is pulverized in a second mill, then is subjected to a thorough sifting.

Chocolate is the cocoa mass with the fat left in. If sugar and the flavor of vanilla are added, the product becomes "sweet chocolate." The fat extracted from cocoa is sold under the name of "cocoa-butter" and is used as a basis for creams and pomade for the hair and skin and in candy manufacturing.

The cocoa beans yield a valuable food product, whether in the form of chocolate or of commercial cocoa. When used in moderation the beverage made from either of these substances is agreeable and nutritious to the human body.

U. S. Foodstuffs Division to Assist in Trade Promotion Programs

To Cooperate Closely With Trade Associations Stimulating Foreign Commerce and Preparing Standard Information on All Commodities

Editor's Note.—Thirty per cent of the total exports of the United States in the past three years consisted of foodstuffs. Yet not until the recent organization of the Foodstuffs Division of the United States Department of Commerce was there any agency to collect, compile and co-ordinate information on the multitudinous details of foreign commerce and to assist actively in the formulation of trade promotion programs. How this new division of the Government will function and what benefits will accrue to American manufacturers are told in this interesting article by Mr. Montgomery.

By E. G. Montgomery

Chief of Foodstuffs Division, Bureau of Foreign and Domestic Commission

ABOUT 30 per cent of the total exports of the United States for the past three years consisted of foodstuffs. The country produces an enormous surplus of foodstuffs, and the possibility of future expansion is practically unlimited. Europe is the great market for American foodstuff exports, taking 83 per cent of the total.

Foodstuffs constitute some 30 per cent of the total imports, and of these purchases 63 per cent is sugar and coffee.

The total number of foodstuff items within the scope of the newly organized Foodstuffs Division of the United States Department of Commerce, will amount to several hundred but may roughly be grouped into several major classes as follows:

1. Breadstuffs:
 - Grains.
 - Flour, grits, and hominy.
 - Feedstuffs (oil meal, gluten feeds, etc.).
 - Prepared cereal foods.
 - Bakery products.
2. Meat and meat products:
 - Meats, fresh and cured.
 - Fish, fresh and cured.
 - Poultry, dressed.
 - Game.
3. Fats and oils:
 - Vegetable oils.
 - Lard and lard compounds.
 - Margarins.
4. Dairy Products, etc.:
 - Butter.
 - Cheese.
 - Milk, condensed and evaporated.
 - Eggs.
 - Honey.
5. Canned foods:
 - Fruits.
 - Vegetables.
 - Fish.
 - Meat.
 - Preserves, jams, etc.
 - Sirups, juices, etc.
 - Soups.
6. Fresh Fruits:
 - Apples, peaches, etc.
 - Citrus fruits.
 - Tropical fruits.
7. Dried fruits.
8. Sugar:
 - Beet.
 - Cane.
9. Confectionery.
10. Beverages:
 - Grape juice.
 - Ciders.
 - Malt liquors.
 - Wines.
 - Mineral and soda water.
11. Chocolate and cocoa.

12. Nuts:
 - Peanuts and products.
 - Tree nuts (almonds, etc.).
13. Coffee, tea, and spices.
14. Groceries:
 - Beans.
 - Miscellaneous.

Co-operation with Food Products Trade

It is proposed at first to limit the activities of the Foodstuffs Division largely to the programs of work developed by conferences with organized groups or trades. This should insure that any investigational or trade-promotion work will be followed up and utilized by the trade. The food products trade is fairly well organized, there being the following number of national and regional organizations dealing with foodstuffs:

	National.	Regional.
Dairy products	5	20
Fruits and vegetables.....	4	23
Canned foods	4	50
Nuts	2	2
Grain and grain products	8	—
Grain exchanges	—	67
Meat and live stock.....	2	—
Livestock exchanges ...	—	28
Groceries	4	12
Sugar	3	—
Coffee	3	—
Confectionery	4	1
Fats and oils.....	4	12
Total.....	43	215

Role of Government Agency

In general, leadership in trade promotion must be taken by the trade, but usually when a trade promotion program is laid out there are certain functions that can well be performed by a Government agency, especially in foreign commerce. Co-operation on trade-promotion programs, is believed to be the most efficient way of insuring the services of the Foodstuffs Division.

Several organizations have appointed "commerce committees" and worked out co-operative programs. Programs have been outlined and are under way by the National Cannery Association, the Federation of Corn Millers, the Cottonseed Crushers' Association, and the Rice Growers' Association of California. Other programs are under consideration.

Commodity Service

As the division is further organized, arrangements will be made to keep certain standard information available on each commodity or product. As an example, the following outline of standard information on vegetable oils has been prepared, which we hope to keep up to date when the division is fully organized:

Co-operation with other branches of the Bureau will enable the Foodstuffs Division to help the industry in regard to questions not directly within the purview of this division. Information regarding foreign tariffs, copyright and trade-mark regulations, customs duties, etc., is to be had through the Foreign Tariffs Division. A world trade directory giving confidential information on the standing of foreign firms and lists of foreign importers, exporters, dealers, and manufacturers interested in American trade may be secured by American firms through the Division of Commercial Intelligence. Help in solving problems of shipping routes, rates, packing, and other transportation matters is offered through the transportation Division. Expert knowledge on facilities for handling delinquent accounts in other countries, foreign Government requirements for doing business abroad, and similar subjects is available through its corps of representatives well distributed throughout the world whose reports of commercial interest appear in the Bureau's weekly

publication, "Commerce Reports." These representatives furthermore desire to be of direct service to American commercial interests. When the food-products trade desires to have investigations made or reports from foreign countries, the Foodstuffs Division will be glad to assist in preparing the inquiry, collecting the information, and distributing it through the proper channels.

1. Trade lists.
2. Raw-material production, world (maps showing relative production).
3. Oil production, world (maps showing production, mills, etc.).
4. Movement in international trade of (a) raw materials, (b) oils, and (c) manufactured products.
5. Consumption by countries (how consumed, etc.).
6. Competition in uses between vegetable oils, animal fats, and other food products.
7. Current information concerning (a) crop prospects, (b) stocks of raw material, (c) stocks of finished product, and (d) trade opportunities.
8. Prices.
9. Bibliography of standard literature.

FOOD CONTROL MATTERS

Court Ruling Reinforces Government Regulations on Waste Vinegar

GOVERNMENTAL ruling forbidding the labeling of vinegar manufactured from evaporated apples as "cider vinegar" were reinforced recently by the decision of Federal Judge F. A. Geiger, sitting in the United States Court at Milwaukee, Wisc., in the case known as, "The United States vs. 65 Barrels."

The defendant in the case was the Douglas Packing Company of Fairport and Canastota, N. Y., the largest manufacturers of vinegar from evaporated apple products, including chops, skins and cores, in this country. The Douglas company, it was claimed, has for years labeled its product "cider vinegar" and the Government by law and regulations held this to be illegal.

After listening to all the evidence in the case, Judge Geiger decided the issue from the bench, without asking that any briefs be handed to him. He held that the product which the Douglas company has been making was not entitled to be called "cider vinegar." In deciding the case, the judge said: "It is evident that the manufacturer felt it would not do to tell the public that dried apples were used."

Commenting on the decision G. W. Reilly, secretary, American Cider and Vinegar Manufacturers' Association, said:

"Wholesale grocers and jobbers who are buying or contracting for vinegar should secure a guarantee in writing that the cider vinegar they purchase is made from apple cider, which is the expressed juice of fresh apples.

"Very recently, the Government has made multiple seizures of this waste vinegar in all parts of the country, and with this decision of the court to support their regulations, they will undoubtedly pursue their course of action with even greater vigor."

Liability For Sale of Unwholesome Food

That the food distributor is not entirely without responsibility in the sale of unwholesome foods, even though the original package is unbroken, was indicated in the recent Fleetwood vs. Swift & Company case.

An action was brought in the Georgia courts to recover damages for injuries alleged to have been caused by the consumption of butter containing a deleterious substance.

The plaintiff had purchased the butter in the original unbroken package from a retail dealer who had, in turn, purchased it from the defendant. The evidence submitted, by the plaintiff showed that the defendant did not manufacture or pack the butter, but acted merely as distributor. Because of the insufficiency of the evidence the lower court granted a nonsuit.

However, the Court of Appeals of Georgia, Division No. 2, reversed the judgment, holding that the distributor of an article is not entirely without responsibility in the matter. The court said: "We do think, however, that, since the evidence is undisputed that the article was actually handled by the defendant, it was incumbent on it to exculpate itself to the extent of showing that it had in good faith procured it from some reputable manufacturer, distributor, or dealer, as an article reasonably safe for the use intended, especially so since there is nothing on the package to indicate who, as manufacturer or packer, was ultimately responsible for the alleged tort."

Find Violations of Law Covering Operation of Milk Plants

Agents of the Pennsylvania Department of Agriculture are conducting a careful investigation of the milk plants of the state handling milk and cream on the butter-fat basis. As the results of irregularities found, the managers of two plants, one at Meadville and the other at Bellfonte, have been arrested, pled guilty and have paid fines for violating the law of 1919.

Operating without licensed testers and failing to hold the samples for the required length of time were the causes for the prosecutions.

The law provides that all plants handling milk and cream on the butter-fat basis must employ testers that have been qualified and licensed by the Pennsylvania Department of Agriculture. In addition, residue portions of the samples of milk and cream taken must be held for a period of ten days, that state agents may be able to conduct a recheck at any time the plant is visited.

The licenses of the testers must be renewed annually and the Department of Agriculture is now sending out the new licenses as well as the 1922 permits to the dairy plants coming under the law.

NEWS OF THE FOOD TRADES

Canners to Work Out Problems in Great Get-Together at Louisville

Fifteenth Annual Gathering of Canning Industry Opens in Confident Spirit—Notable Speakers on Program

As the present issue of The American Food Journal goes to press, the fifteenth annual meeting of the National Canners' Association, Canning Machinery and Supplies Association and the National Food Brokers' Association is about to open.

Messages from the Three Presidents

The spirit of this great get-together convention—probably the most important event in the year for the canners, brokers and distributors of the country—is possibly best reflected in the "Greeting and Invitation," extended by Messrs. Strasbaugh, president of the National Canners' Association, Sells, president of the Canning Machinery and Supplies Association and Kroehle, president of the National Food Brokers' Association, which reads as follows:

"The fifteenth annual convention is to be held in Louisville, January 16-20, 1922. For the fourth time this enterprising and hospitable city opens its doors and extends a welcome to the joint meeting of our allied associations.

"The past year has been beset with difficulties and the economic problems that fill the world today confront us individually and collectively. Criticism is rampant everywhere, but helpful, constructive criticism is needed in all progressive undertakings. Standing loyally back of our national associations in pulling together let us strive by united effort to solve our problems.

"The great importance of the canning industry in the nation's food-supply is presented by a few striking figures.

"During the one and a half years of the recent war, the War Department alone purchased for the American and Allied Expeditionary Forces 30,000,000 cases of canned vegetables and 2,000,000 cases of canned fruits, practically all of which were consumed abroad; and the recent census figures value the annual output of canned foods at over \$800,000,000.

"With the hope that the spirit of this meeting will be one of co-operation, we extend our greetings and earnestly invite everyone interested in the work of our associations to attend their fifteenth annual convention."

Machinery Exhibit a Feature

Splendid facilities have been assured the convention by the Armory for the elaborate Canning Machinery Exhibit which is a feature of each convention. In conjunction with this, canners will have an opportunity of displaying their individual products during certain hours. A new feature to be introduced at the 1922 gathering and of particular interest to the consumer will be a special "convention canned food week." The co-operation of the jobbers, brokers

and the twelve hundred retail grocers of Louisville has been secured.

There will be no convention hotel, but meetings will be held in all of the principal hotels. Those who have not made their hotel reservations are requested to communicate at the earliest possible time with George E. Allen, secretary of the convention, at Louisville.

Important Program Features

Canners from all sections of the United States are already on their way to Louisville to attend the convention. Men prominent in the industry, scientists and food experts will address the general sessions and numerous section meetings.

Harry P. Strasbaugh of Aberdeen, Md., president of the National Canners' Association, will preside at the opening session Monday afternoon. The speakers will be Ogden S. Sells, president, Canning Machinery and Supplies Association, Buffalo, N. Y.; Paul E. Kroehle, president, National Food Brokers' Association, Cleveland, Ohio; W. G. Campbell, acting chief, Bureau of Chemistry, U. S. Department of Agriculture, Washington, D. C.; R. I. Bentley, San Francisco, Cal.; J. W. Herscher, president, National Wholesale Grocers' Association, Charleston, W. Va.

Also, R. W. McCreery, Marshalltown, Iowa; Harry L. Jones, president National Chain Store Grocers' Association, Brooklyn, N. Y.; B. R. Hart, specialist in canned foods, bureau of foreign and domestic commerce, Washington, D. C.; F. E. Kamper, president, National Retail Grocers' Association, Atlanta, Ga.; and J. H. McLaurin, president, Southern Wholesale Grocers' Association, Inc., Jacksonville, Fla.

Interesting Section Programs Planned

The following will have special programs: tomato section, William Silver, Aberdeen, Md., chairman; molasses and sirup section, L. B. Whitfield, Montgomery, Ala., chairman; pumpkin section, Richard Dickinson, Eureka, Illinois, chairman; joint session wax and green bean section and baked bean section, H. E. Halstead, Cortland, N. Y., chairman; wax and green bean section, E. P. Gale, Marshalltown, Iowa, chairman; pea section, James A. Anderson, Morgan, Utah, chairman; fruit section, F. H. Van Eenwyck, East Williamson, N. Y., chairman; kraut section, B. E. Babcock, Phelps, N. Y., chairman; milk section, Walter Page, Chicago, chairman; corn section, J. W. Hill, Des Moines, Iowa, chairman; tomato catsup section, Wade L. Street, Chicago, chairman.

There will also be held a special meeting of sweet potato canners; meetings of the canners' Inter-Association and the National Preservers' and Fruit Products Association and the annual meetings of National Food

Brokers' Association, Canning Machinery and Supplies Association, and National Pickle Packers' Association.

Agricultural Department Exhibit

Through the courtesy of the U. S. Department of Agriculture, the bureau of raw products research of the National Canners' Association has received assurance of special exhibits and demonstrations which are in preparation for the Louisville convention. These will be accompanied and explained by the Department's scientific experts.

Reduced rates to members of the three associations, dependent members of their families of a fare and a half for the round trip to Louisville have been granted by practically all of the passenger associations. To secure the benefit of these rates, identification certificates will be furnished to members upon request, by the secretary of their respective associations.

There will be a special dinner-dance Wednesday evening and Thursday evening a theater party.

A full report of this convention together with the leading addresses will appear in the February number of The American Food Journal.

Market in Italy for American Canned Goods

The market in Italy for American canned goods has been much affected since the war, due to the fact that when the armistice was signed the Government had large stocks of canned goods on hand, which it has been distributing through co-operative organizations and other channels at very low prices, reports Commercial Attache H. C. MacLean, at Rome. These stocks, however, are now almost exhausted, and later on there should be an opportunity to do some business in this commodity, although in general Italians are not fond of either canned meats or canned vegetables. What demand there is comes principally from the north, where during the winter it is more difficult to obtain fresh products. California fruits, however, are very well liked and command good prices.

Protests Tomato Duties

The official agricultural chamber of Gran Canaria, one of the Canary Islands, has petitioned the Spanish Foreign Minister to open negotiations with the United States Government for revision of the duties imposed on tomatoes, which are sent to America in large quantities from the Canaries.

The petition says that American merchandise enters the Canaries duty free and argues that the interests of the producers in the Canaries suffers greatly owing to inequality of treatment.

COMING EVENTS IN THE FOOD WORLD

January 16-21—National Canners' Association, annual meeting, Louisville, Ky.

January 16—Canning Machinery and Supplies Association, annual meeting, Louisville, Ky.

January 16—National Preservers' and Fruit Products Association, annual meeting, Louisville, Ky.

January 16—National Food Brokers' Association, annual meeting, Louisville, Ky.

January 17-23—National Thrift Week.

January 16-20—Missouri Creamery Operators' and Managers' Association, annual meeting, Columbia, Missouri.

January 17—United States Civil Service Examinations, for live stock market reporter and meat market reporter.

January 30—Siebel Institute of Technology, Chicago, Ill., short course in baking begins.

January 30-February 24—First Annual Canners' School, Oregon Agricultural College, Corvallis, Ore., courses given by department of horticulture commence.

February 15—Interstate Commerce Commission Hearings on Freight Rates, by request of National Canners' Association, Washington, D. C.

February 15-16—Kentucky State Bottlers' Association, annual meeting, Louisville, Ky.

March 1-8—National Canned Foods Week.

Siebel Institute Begins Women's Course in Baking

The Siebel Institute of Technology of Chicago recently announced a special two weeks' course for women students in cake and pastry making, starting January 30. This is the first course given by that institution in which women students are to be admitted. It will be arranged on similar lines as those which have been followed in the past, the curriculum being tentatively set as follows:

First week: making of puff paste and puff paste goods; special kinds of pies and pie fillings; tartlets, frosted and fancy cakes; wine and ice cream cakes; finishing of torten, petits fours and French pastry; sponge and box cakes; cookies, snaps, jumbles, etc.

Second week: almond and coconut macarons; ice cream confection; meringues; sweet doughs, coffee cakes, sweet rolls, Danish pastry; ornamenting and decorating; marzipan work.

Requests for information regarding this course should be addressed to the registrar, Siebel Institute of Technology, 964 Montana Street, Chicago.

George Green Out of Shredded Wheat Company

George E. Green, district sales manager for the Shredded Wheat Company at Chicago, announced recently to the Chicago Auxiliary of the American Specialty Manufacturers' Association that he would "retire from business voluntarily." A committee was appointed to arrange a banquet to be given in his honor consisting of Frank Morse of Nestle's Food Company, A. E. Cull of the Corn Products Company and J. H. Stephenson of Fels & Co.

Calumet Kid Puts New Feather in His Cap

"The Calumet De Luxe Review of 1921," prepared by the Calumet Baking Powder Company, under the direction of K. K. Bell, general manager, and C. F. Keene, has recently made its appearance, resplendent in its handsome format and brightly dressed in colorful art plates and photos.

It is a publication "of Calumetians, by Calumetians and for Calumetians, from W. M. Wright, its founder and president, down to the office boy." It carefully and engrossingly recounts the activities of the year—general business, sales, advertising and recreation—omitting no detail of human interest and recounting alike and with no partiality, the doings of the "Bloomer Baseball Girls" (quondam stenographic staff) and the "Mastadonic Minstrels," as well as those of Peter Manning, the president's own Kentucky-bred champion trotter.

Interesting articles include: "Calumet, Past and Present," by the president; "The Romance of a Great Idea," by Warren Wright; and "Why is Baking Powder Like Advertising," by K. K. Bell.

Altogether, the work is a publishing achievement telling in a forceful way the signal success won by the aggressive sales and advertising efforts of Calumet and indicating the multiplicity of activities that go to make up a modern food manufacturer's program.

R. C. Anderson, manager of the coffee department of the Alpha Beta Stores at Pomona, Calif., announces that he has "succeeded in reducing the coffee berry into tablets, containing all of the strength and aroma, readily soluble in hot water for instant use."

COFFEE OUTLOOK FOR 1922

By Felix Coste, Manager, National Coffee Roasters' Association.

The most fundamental, and at the same time the most encouraging factor to be considered in looking into the immediate future of the coffee business is the steady increase in consumption. But the influences that are largely responsible for this gain, such as advertising and intensive selling, must be reckoned with in trying to estimate the degree of prosperity which the trade may hope to enjoy.

Notwithstanding the fact that the coffee business is already overcrowded, it seems to possess unusual attractions and additions to the ranks are announced quite regularly. Some of the old established firms are preparing to extend their territories and their invasion of new fields will be vigorously resisted by local roasters. Nineteen twenty-two will probably be a year of keen competition for this and other reasons. While such competition may bring attractive offers to the retailer the net result is not likely to be a benefit because intensive selling tends to load up the dealer with too many brands and cause him to lay in a larger stock than he can comfortably dispose of before it gets stale.

The increasing competition is causing the wholesale roaster and distributor to examine more closely into manufacturing and selling costs and to pay more careful attention to Old Man Overhead. Little economies which might be scorned a year or two ago are being studied and utilized.

The process of liquidation which the coffee trade went through in advance perhaps of most other grocery lines, is over and the last losses of this kind were written off in the recent inventories.

Merger of Western Vegetable Canners Now Under Way

Corporation Plans to Produce 10,000 Cases from 1922 Crop and Finance Its Support Against Forced Marketing Necessity

A tangible step to put the canning industry on a definite basis of financial stability is reported from Chicago, evidently the tangible fact from which have been emanating a great many rumors for some time past. As announced it will be the biggest canning enterprise ever recorded.

The plan contemplates the formation of a corporation large enough and sufficiently well financed to pack 10,000,000 cases of canned vegetables annually, says The Canner. Back of it are a number of the younger generation of canners who have had abundant practical experience in the canning business. While they have been working at the merger quietly for some time, rapid progress has been made during the past few weeks, so that it is felt that the deal will be closed and the wheels of the big corporation start turning on the pea pack of 1922.

Corporation Organized by Merger

It is proposed to bring about the organization of a corporation by merger or by purchase of a number of the representative canning companies now operating in the Middle Western States, particularly Iowa, Nebraska, Minnesota, Wisconsin, Illinois, Indiana and Michigan. The canneries that will probably be merged are, of course, mainly engaged in the canning of vegetables, principally peas, corn and tomatoes,

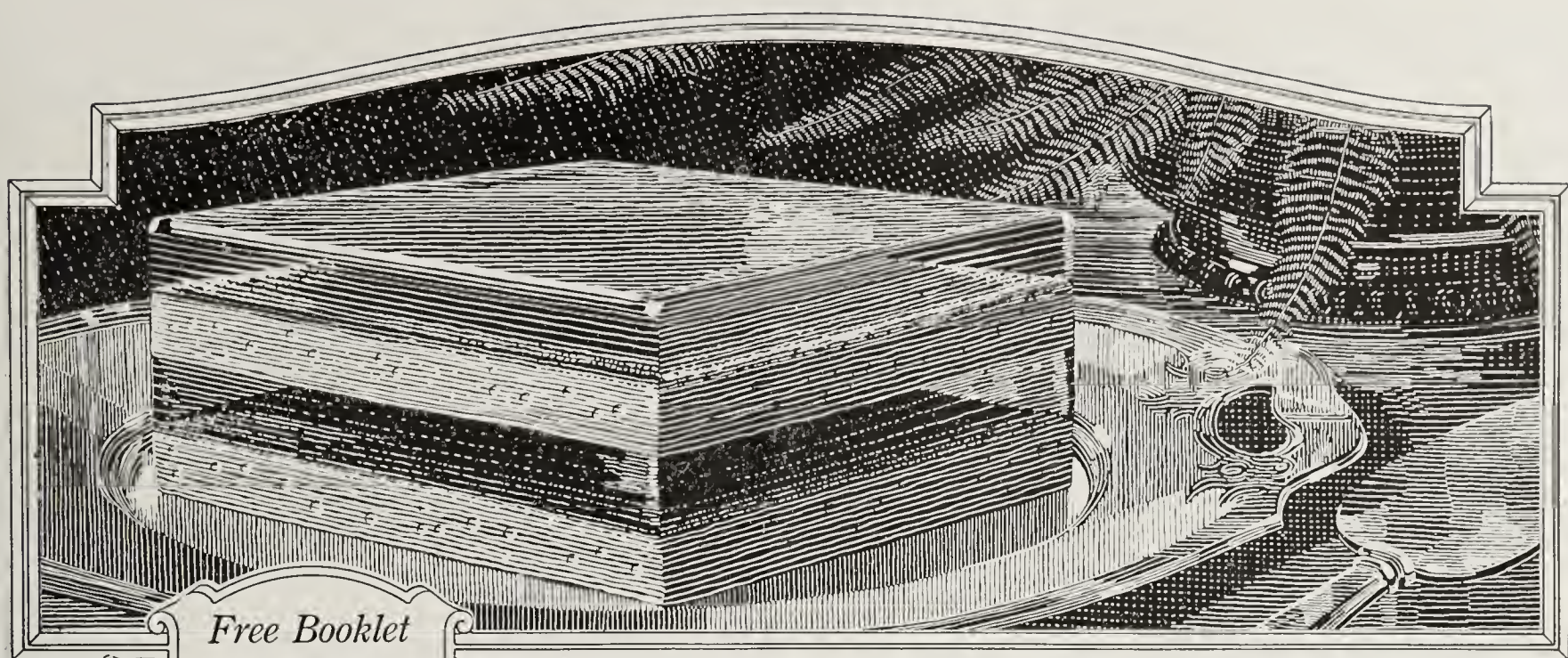
but when the merger is effected a complete winter line of goods will be packed.

The primary object of those who are working on the merger is to secure volume sufficiently large to enable them to put into effect a plan of grading and to put the new company's own label on the qualities packed and to advertise that brand.

Canners Need Working Capital

There is a feeling that the canning industry as a whole needs more working capital; that canning is passing through a transition period. The small individual unit, it is said by those who are effecting the merger, is not in a position to create working capital, because his securities cannot be listed on an exchange and he is usually not large enough to put out a bond issue, and the only market for his stock is in his own locality, which oftentimes is a farming community, and farmers are busy with their own financing. The effective way to create any amply financed corporation, they say, is by getting together in one large unit.

The proposed consolidation will be financed by Harvey Fisk & Sons, the New York financiers, who will underwrite a \$4,000,000 bond issue and who have provided other means for securing working capital which will enable the consolidation to create a commercial paper open line of credit which will take care of all ordinary needs.



Free Booklet

A Beautiful
Jell-O Book will
be Sent Free to
any address
upon request

HOME dinners require suitable desserts. Jell-O makes a home dinner complete,—it is just right.

Jell-O has a light and velvety quality that makes it an ideal finish for dinner. It satisfies. Jell-O is so pretty that it rouses the family's interest at once, and it is as good as it looks.

JELL-O

America's Most Famous Dessert

The American Offices and Factory of The Genesee Pure Food Company are at Le Roy, New York, in the famous Genesee Valley Country.

The Offices and Factory of The Genesee Pure Food Company of Canada, Ltd., are at Bridgeburg, Ontario, on the Niagara River.



Urge Reduction on Canned Food Freight Rates

Canners to Call Attention to Material Reductions in All Other Factors in Cost of Product, in Hearings Before Interstate Commerce Commission

Preparatory to a general scaling down of railroad freight rates a hearing is under way before the Interstate Commerce Commission in Washington. The railroads are now being heard and later the shippers will present their side of the question. The canners and wholesale grocers are scheduled to appear February 15.

The National Canners' Association, through its traffic committee, of which Charles G. Summers, Jr., of Baltimore is chairman, will participate in the hearings to ask that the present freight rates on canned foods be reduced. The canners will show that every single factor in the cost of canned foods has materially declined while freight rates have materially increased. They hope to develop the fact that while the apparent increases in freight were only 25 per cent on June 25, 1918, and an average of about 33 per cent on August 26, 1920, yet these increases pyramid, due to the increased freights on all raw supplies bought by the canners. The presentation will not only take into consideration the rates on the outgoing finished products, but will have to do with the rates on incoming supplies such as cans, tinplate, boxes, labels, etc.

Meeting of N. C. A. Traffic Committee

Preliminary to their appearance before the Interstate Commerce Commission, which it is thought will be early in February, there was an important meeting of the canners' traffic committee in Washington. Present were M. L. Toulme, of New York, secretary National Wholesale Grocers' Association; C. S. Duncan of Washington, D. C., and S. M. Janney, Fredericksburg, Va., representing the Southern Wholesale Grocers' Association; G. Stewart Henderson, Baltimore Canned Goods Exchange, and E. L. Depass, Chicago, traffic manager, Carnation Milk Products Co. Representing the National Canners' Association were Harry P. Strasbaugh, Aberdeen, Md., president; Mr. Summers, chairman of the traffic committee; L. F. Berry, Chicago, traffic manager, Reid-Murdoch Co., a member of the committee, and Judge H. Harry Covington, Washington, D. C., counsel for the association.

Rates Injure Business, Say Canners

Mr. Summers presided. He said, in part:

"The canners of the country believe their business is seriously injured by the present high freight rates. To the present rate of something like 166 per cent on hauling food actually canned, there must be added another 150 per cent due to the freight on raw materials, such as cans, lumber for packing boxes, etc.

"I do not believe the people appreciate the volume of the canning business or what it is worth to the farmer. According to recent census figures the total pack in 1919 was 166,086,234 cases valued at \$837,926,749. That is something like fifty cans per person per year.

"From that it would appear that canned food is a necessary factor in our daily life and that the people would be interested in a reduction of the cost of canned foods which would be possible if there were a lower freight rate.

"Our idea will be to show by government figures the great volume of the canned foods business, which is understood by so few. We would couple with this a statement that would impress upon all interested, the great amount of money paid to the farmers directly and indirectly by the canners."

It was said in these days of financial depression when many laboring people were out of work, with prevailing reductions in wages, the aim of the canning industry is to give them the most economical, nutritious and healthful food. These classes consume the bulk of canned foods manufactured and they need relief from present high food rates. One way to give them relief would be through lower freight rates.

New Canning Course at Oregon College

Practical Classes to be Held in Many Phases of Double Seaming Machines, Commercial Canning and Bacteriology

The first annual Canners' School to be conducted by the Oregon Agricultural College will be instituted during the month of January 30 to February 24. This will be conducted by the Horticultural Products Section of the Oregon institution at Corvallis, Ore., and has been designed to meet the needs of men actively engaged in the manufacture of canned fruits and vegetables.

Features of the course will include:

Double Seaming Machines. Seaming machine adjustment, repair, and operation. This work will be handled by representatives of the American Can Company.

Commercial Canning. This course will cover the problems of the packer of the Northwest, and will also deal with the fundamentals of food preservation by canning. Problems of preparation, exhausting, heat penetration, processing, and storing will be taken up.

Bacteriology of Canning. An elementary course in the study of microorganisms found in the canning industry; the study of organisms in food preservation and their control in fruits, vegetables, and other food stuffs; the relation of microorganisms to curing, ripening, and preservation of food products; study of general cleanliness and sanitation of the plant.

Chemistry of Canning. Students will be trained as far as practicable in the use of such instruments of precision as can be applied to every-day canning problems. Hydrometers for determining strength of saline and sugar solutions and acetometers for vinegar will be given special attention. Students will be taught to determine the strength of vinegar by the titration method and to make for themselves all solutions necessary. An attempt will be made to instruct the practical canner in the chemical aspect of his every-day problems.

Horticultural Crops. This course will

deal with a study of varieties of fruits and vegetables adapted to canning. Special attention will be given to a study of the state of maturity to obtain a product of the highest quality, and harvesting and handling from the farm to the cannery.

Further information regarding the course may be obtained by addressing the Horticultural Products Department of Horticulture, Oregon Agricultural College, Corvallis, Oregon.

Goat Meat Usually Reaches Consumer as Lamb or Mutton

Goat meat is seldom found on the market as such, yet the average number of goats slaughtered each year from 1916 to 1920, inclusive, was 141,487. It is probable that most of this meat reaches the consumer as mutton, which it resembles closely, as there are few cities that require it to be marketed under its own name. In cities and towns adjacent to the range country, however, Angora wethers are freely marketed as such and the meat is consumed without discrimination by the buyer. When received in large numbers these wethers usually sell at about 60 per cent of the price paid for sheep wethers.

The reduced cost of goat meat is doubtless attractive to the consumer, whether he knows what he is getting or thinks he is buying mutton. According to Farmers' Bulletin 1203, the Angora goat, recently issued by the United States Department of Agriculture, goat meat is usually superior to mutton that can be bought at the same price. Some consumers say that they are able to distinguish it from lamb and mutton by a characteristic sweetness.

Macaroni Association President Dies

C. F. Muller, Jr., president of the National Macaroni Manufacturers' Association, died December 13. Though frail in health for many years, Mr. Muller was one of the most active and successful figures in the macaroni industry and played a large part in the successful organization of the national association. B. F. Huestis of the Huron Milling Company, Harbor Beach, Mich., it is announced, becomes his successor.

Announce Change of Corporate Name

At the beginning of its "golden anniversary year," Rueckheim Brothers and Eckstein, Inc., of Chicago and Brooklyn, one of the largest manufacturers of confections in the country, announces the change of its name to The Cracker Jack Company.

Since the organization of the firm in 1872, it has manufactured confections of all kinds. One of them, however, has achieved considerable popularity above all the others—Cracker Jack—even to the point where the trade has come to call the organization "The Cracker Jack Company."

Appreciating that the choice is a good one, the directors of the company decided to adopt it officially. The change in name will in no way affect the organization or its policies.

Plan Business Paper Campaign

The Continental Scale Works of Chicago, maker of health scales, will begin an advertising campaign at once in business papers. The account is being handled by the Turner-Wagener Company of that city.

The "ATLAS" Label

Protects You

It Has Stood for Highest Quality and
Uniformity for Over Half a Century

"Atlas" Certified Food Colors	"Atlas" Carmine No. 40	"Atlas" Pure Vanilla Ex- tracts, Emul- sions, Etc.
"Atlas" Vegeta- ble Colors	"Atlas" Genuine Fruit Extracts	

Manufactured at Our Works in Brooklyn, N. Y.
Correspondence Solicited, Prices and Samples Submitted

*First Producers
of Certified Colors*

H. KOHNSTAMM & CO.

ESTABLISHED 1851

NEW YORK

CHICAGO

Sample Copies—

We shall appreciate having you send us the names of any friends or business associates who would be interested in seeing a sample copy of The American Food Journal, mailed with our compliments.

THE AMERICAN FOOD JOURNAL

Floral Park, New York

BUSINESS and EDITORIAL OFFICES

25 East Twenty-Sixth Street

New York City

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THE MOHEGAN TUBE COMPANY

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British Market for American Honey

Extensive Advertising Campaigns May Readily Create a Demand for This Product

Belief that a permanent market for American honey may be developed in the United Kingdom was recently expressed in a report to the Department of Commerce by Trade Commissioner Hugh D. Butler of London. Extensive advertising campaigns undertaken by American manufacturers with this objective in sight would readily create a considerable demand for this product, according to Commissioner Butler.

Marmalade and jam are used almost as generally as tea by the British people, says the report, and there can be no doubt about their taste for sweets. Under these conditions honey may very conceivably be acceptable as a change from these conserves.

There seems to be a general misapprehension as to the market for honey in the United Kingdom, due to the fact that the shortage of sugar during the war created an enormous temporary demand for honey as a substitute, continues Commissioner Butler. Biscuit and candy manufacturers especially used it in large quantities. The main sources for honey at that time were the West Indies and Cuba. The demand was so great that a price of 32 pounds per ton was increased within a short time to 200 pounds per ton. Subsequent to the Armistice, the demand has fallen off very rapidly. One dealer who supplied 3,500 barrels of Cuban honey in one year has not sold any appreciable quantity since.

No Complaints Against Californian Honey

An agent who represents certain American bee keepers states that there is no complaint made in regard to the Californian honey received in this country. In matters of color, flavor, containers, packing, labeling, etc., there is no adverse criticism. Shipments received from California or Jamaica can be depended on to be of uniform quality throughout. This can not be said of the Australian product, the honey in some containers in a shipment from that country being certain to taste of the Eucalyptus tree, which detracts materially from the value of the product.

At the present time there is no market here for honey as a substitute for sugar, as the latter is now quoted at a figure one-half that of the former. Consequently, the American exporter must look to the use of honey in the home for any expansion of demand. Honey is quoted in this market at present around 10 pence per pound. There are, of course, varying prices for jams, ranging from 6d. per pound for apricot jam to, say, 1 shilling per pound for black currant, so that roughly the price for honey is about equal to the average price for jam. However, if we consider the fact that a pound of honey would not be consumed so quickly by the average family as the same quantity of jam, there is a distinct saving in the use of the former.

Green Bay Wholesale Grocery

The Green Bay Wholesale Grocer Company, Green Bay, Wis., has been organized at a capitalization of \$25,000. H. J. Denessen, Arthur Denessen and Myrtle Denessen are the officers.

Fred Mason Chooses Assistant

Fred Mason, who was recently appointed vice-president of the American Sugar Refining Company, has chosen James F. Brownlee as his immediate assistant. Mr. Brownlee entered the sales organization of the company in 1912 and has represented the firm as salesman, head salesman and superintendent of salesmen in New York, Syracuse, Buffalo, St. Louis and Chicago territories and as manager of the export division. He has a wide acquaintance with the wholesale, manufacturing and export trade. Mr. Brownlee served as an officer in the A. E. F.

I. C. Morgan Buys Hougland Cannery

Hougland Bros. Canning Company has been purchased by I. C. Morgan, president Morgan Packing Company, Austin, Ind. and will begin operations under the new management January 1. The plant is located twenty miles north of Louisville, Ky., in the center of Southern Indiana's best producing district.

Neps Foods Corporation

The Neps Foods Corporation, 1422 West Monroe Street, Chicago, was recently organized at \$100,000. Its incorporators were Victor Luisi, D. N. Tomaso and Louis Garavetta. The firm will manufacture and deal in food products.

New Advertising Campaign for California Olive Association

The California Olive Association, at a meeting of its advisory board in San Francisco, recently approved the plans covering new advertising campaign to be started shortly, resuming the advertising activity of the organization which had been held in abeyance since late last year.

The new publicity plans call for intensive advertising among the wholesale and retail dealers throughout the country in an effort to restore the confidence of these dealers in the ripe olive and enlist their activities in pushing the sale of these goods. Ever since the food poisoning cases in the East the grocers, for the most part, have been inclined to neglect the ripe olive in their sales and this has worked to the great disadvantage of the olive industry. The new campaign to the grocers will be educational and will assure them of the wholesomeness of all ripe olives now packed in California under the regulations of the State Board of Health.

Window displays and other dealer helps are being worked out at this time and these will, it is expected, aid materially in the sales promotion work which the retail grocers will be asked to do on the ripe olive.

Exports in Foodstuffs Continue to Show Increases

Recording-Breaking Amounts in Wheat and Rice, Largest in Twenty Years in Corn—Europe Chief Destination

While the world can wear its old clothes for another season and even get along with last year's automobile, it must have food, and as a consequence, says the "Trade Record" of The National City Bank, New York, our exports of foodstuffs continue to show increases in quantity in all of the more important articles.

Corn exports in the nine months ending with September are 105,000,000 bushels against only 11,000,000 in the same months last year, and will show a bigger total in the calendar year 1921 than at any time in the past twenty years. Wheat exports in the nine months ending with September were nearly 300,000,000 bushels (including flour in terms of wheat), as against about 200,000,000 in the same months of last year, and it is quite apparent that the total exports of wheat in the calendar year 1921 will exceed those of any earlier year in the history of our export trade. Rice also makes by far its highest export record in 1921, the quantity for the nine months ending with September being 490,000,000 pounds against 294,000,000 in the same months of last year, and 393,000,000 in the full calendar year 1920, the former high record in rice exportation. Barley exports are also far in excess of those of the same months of last year, over 20,000,000 bushels against 11,000,000 in the corresponding months of 1920, though in oats and rye there is a material decline in quantity as well as value.

The demand for meats is not as great proportionately as for cereals. The quantity of bacon exported shows a slight decline, but that of hams and shoulders a marked increase, while lard shows a total of 716,000,000 pounds against 430,000,000 in

the same months of last year and seems likely to exceed 1,000,000,000 pounds in the calendar year 1921, as against a former high record of slightly less than 800,000,000 in 1919. In fresh beef we are getting back to pre-war conditions, and the quantity exported in the nine months ending with September, 1921, is only 9,500,000 pounds against a little less than 7,000,000 in the year preceding the war. Oleo oil shows a total of 106,000,000 pounds against 49,000,000 in the same months of last year, and cottonseed oil, of which the exportations are chiefly used for food, shows a total of 220,000,000 pounds in the nine months of 1921 against 113,000,000 in the same months of last year.

Europe Chief Destination

Europe is, of course, the chief destination of the foodstuffs being exported in such large quantities, the largest ever in wheat and rice and the largest for twenty years in the case of corn. In the eight months ending with August, the latest period for which full details are available, Europe took 175,000,000 bushels of wheat exported, though in the wheat which was exported in the form of flour a considerable percentage went to the Latin American countries. Of the corn exported, Europe's share was less than in the case of wheat, though nearly one-half of the big exports of corn are now being sent to that continent. Europe is also making a favorable acquaintance with our rice, of which we have only become large exporters in very recent years, Germany having taken 54,000,000 pounds of the rice exported in 1920, the latest year for which details are available; Greece 35,000,000 pounds; Belgium 20,000,000; and France 20,000,000 pounds.

A Warning:

Wholesale Grocers and Jobbers

who are buying or contracting for vinegar are warned that the United States Court sitting at Milwaukee has decided that the product made from dried chops, cores and skins is not entitled to be called Cider Vinegar, the test case being that of the Government against 65 Barrels, defended by the manufacturers, Douglas Packing Co. of Fairport and Canastota, N. Y.



"Products from Pure
Apple Juice Only"

AMERICAN CIDER AND VINEGAR
MANUFACTURERS ASSOCIATION

WILL YOU HELP PRESENT SOME PERTINENT FACTS?

The broad influence of a trade paper can be used at a time like this very beneficially to this industry. There are many things happening today showing the revival of business in the food trades. Will you send us one or two pertinent facts that have occurred in your branch of the industry, or in your organization showing the improvement in business? If you will do this we will gather together this information and use it in a manner that will further stimulate improvement. This will be profitable to you and valuable to us.

THE AMERICAN FOOD JOURNAL

Floral Park, N. Y.

BUSINESS AND EDITORIAL OFFICES

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New York City



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CHICAGO

For Better Labeling Requirements

Director of New York Bureau of Foods and Drugs Declares Regulations Inadequate

More comprehensive labeling requirements than are now provided for in the Federal Food and Drugs Act, were urged in a recent report by Dr. Ole Salthe, acting director of the New York City Bureau of Food and Drugs, on the work of his organization.

"The rigid enforcement of the Federal Food and Drugs Act has resulted," says Dr. Salthe, "in foods shipped in interstate commerce being so labeled that, where imitations or substitutes are used, such facts are clearly set forth on the label. These same foods, however, when they arrive in the city, are manufactured into other products, and the labeling which the Federal authorities require is lost sight of, and food-stuffs containing artificial colors and artificial flavors are being sold in the city without such facts being clearly indicated to the consumers.

"There is need, therefore, for a more comprehensive labeling law and for more intensive work following where the Federal Government leaves off.

"In the proper supervision of the sale of food, and the handling of food in food establishments, the consumers are not only protected, but the food dealer receives much benefit from such inspection. For instance, in the supervision of the milk supply, the food inspector practically acts as a check for the milk dealer, notifying him of the necessity of making repairs at once which, if permitted to remain undone, would mean a much greater expense, at a later date."

Recent Patents

The following patents of interest to readers of this journal recently were issued from the United States Patent Office. Copies thereof may be obtained from R. E. Burnham, patent and trade-mark attorney, Continental Trust Building, Washington, D. C., at the rate of 20 cents each. State number of patent and name of inventor when ordering.

1,395,831. Cereal food and process of preparing the same. Martha R. Kelly, Laredo, Tex.

1,395,015. Art of treating wheat-grains and product therefrom. Charles V. Rowell, Croydon, New South Wales, Australia.

1,395,934. Food product. Frank W. Stockton, Pittsburgh, Pa.

1,397,187. Process of salting nuts in the shell. Thaddeus C. Tucker, Oakland, Cal.

1,397,445. Device for atomizing and drying or evaporating milk and other liquid substances. Philipp Muller, Leipzig, Germany.

1,397,655. Automatically-operating cake receiving, separating and centralizing machine. Peter Rasmussen, Denver, Colo.

1,397,656. Multiple-guide-row stacked-cake receiving and assembling machine. Peter Rasmussen, Denver, Colo.

1,397,657. Transversely-adjustable chute for cake-stacking machines. Peter Rasmussen, Denver, Colo.

1,397,658. Automatically-operating material-sprinkling hopper for marshmallow or

other material depositing machines. Peter Rasmussen, Denver, Colo.

1,397,663. Treatment of butter-fat. Albert F. Stevenson, Ridgewood, N. J.

1,397,664. Manufacture of milk-fat. Albert F. Stevenson, Ridgewood, N. J.

1,397,723. Food compound. Bruce E. Clarke, Kansas City, Mo.

1,397,742. Chewing-gum or chewing-gum substitutes. Adolph P. Rapp, New York, N. Y.

1,397,757. Confection apparatus. Thomas A. Ebaugh, Kansas City, Mo.

1,397,981. Cake-machine. Walter Peters, Chicago, Ill.

1,398,003. Manufacture of butter substitutes, edible fats, and the like. William Clayton, Liverpool, and Gerald Nodder, Wallasey, England.

1,398,080. Process of treating juice and product. Irving S. Merrell, Syracuse, N. Y., assignor to Merrell-Soule Co., same place.

1,398,081. Process of treating juice and product. Irving S. Merrell, Syracuse, N. Y., assignor to Merrell-Soule Co., same place.

1,398,114. Apparatus for heating, roasting and cooling food products. Henry Prell, Cleveland, Ohio.

1,398,115. Process of roasting coffee. Henry Prell, Cleveland, Ohio.

1,398,339. Art of making jams, jellies and marmalades of fruits. Eudo Monti, Turin, Italy.

1,398,352. Peanut-butter. Walter W. Willison, New York, N. Y., assignor to Thermokept Products Corporation, same place.

1,398,464. Powdered meat product. John C. MacLachlan, St. Paul, Minn., assignor to Standard Food Products Co., same place.

1,398,735. Method of desiccating fluid mixtures. John C. MacLachlan, St. Paul, Minn., assignor to Standard Food Products Co., same place.

1,398,836. Process of preserving meat and alimentary substances. Louis F. Bullock, Sydney, New South Wales, Australia.

1,398,860. Method of freezing and preserving eggs. John M. Hussey, Wichita, Kans.

1,399,471. Method of preserving vegetables, fruit, and the like. Arnold Faitelowitz, Berlin, Germany, assignor to Chemical Foundation, a corporation of Delaware.

1,399,858. Vegetable - paring machine. Claude E. Garrio, Madison, Wis.

1,399,873. Apparatus for forming cakes, etc. Howard L. Powell, New York, N. Y., assignor to National Biscuit Co., same place.

1,399,920. Whole-rice meal. Moses M. Baumgartner, Freeport, Ill.

1,400,086. Fruit preservative and process of using the same. Rex De O. McDill, Riverview, Fla.

1,400,128. Machine for making candy. Fred E. Zaiss, Chicago, Ill.

1,400,160. Process of producing malted pearl-barley. Albert Heinemann, Berlin-Wilmersdorf, Germany.

1,400,161. Process of producing a substitute for raw coffee-beans. Albert Heinemann, Berlin-Wilmersdorf, Germany.

1,400,191. Food product and process of making the same. Perry C. Wadsworth, Santa Ana, Cal., assignor to Taylor's, same place.

1,400,216. Apparatus for manufacturing shortening material. Valentine Hechler, Chicago, Ill., assignor to Wilson & Co., same place.

1,400,341. Process of manufacturing oleomargarin. William T. Ashby, Bloomfield, N. J.

New Regulations on Alcohol Issued

Denatured Product May be Sold Hereafter in Individual Pint-Size Containers Only

Provision that denatured alcohol sold for external use must now be put up in individual containers not to exceed one pint in capacity, was one of the outstanding features of the new regulations just issued by the Treasury Department making important changes in the alcohol rulings to be observed by flavoring extract manufacturers. In an official communication to the Flavoring Extract Manufacturers' Association approved by Lannen and Hickey, counsel of that organization, the changes put into effect were summarized as follows:

"Specially denatured alcohol for external uses must not be sold by the manufacturer in bulk but must now be put up by the manufacturer in the individual containers going to the ultimate consumer. These individual containers shall not exceed one pint in capacity.

"If you have any of your medicinal preparations or flavoring extracts manufactured for you, your manufacturer before delivering the goods to you must place a label thereon showing the serial number of his permit. If, after you receive the goods from your manufacturer, you transfer them to other containers for sale, the label on the new containers must bear the serial number of the permit of your manufacturer.

"Copy of each permit to purchase alcohol must now be forwarded by the prohibition director to the Prohibition Commissioner.

"On a permit to purchase a quantity of alcohol exceeding one barrel, or 15 cases, and involving interstate shipment, the director issuing the permit will send the vendor's copies thereof by registered mail to the prohibition director of the State from which the alcohol is to be shipped. Heretofore this procedure was necessary only when the interstate shipment was to be made by truck, but by virtue of the present ruling it is extended to interstate shipments by railroad, express, etc."

Apple Statistics of 1919

Of the 136,560,997 bushels of apples produced in the United States in 1919 98,582,854 bushels, or 72.2 per cent were reported as sold in 1919 by the farmers who produced the apples, or to be sold at a later date. Seven States reported more than 4,000,000 bushels of apples sold in 1919, as follows: Washington, 20,845,774; New York, 11,769,151; California, 6,828,623; Arkansas, 5,704,867; Virginia, 5,650,726; Oregon, 5,054,500, and Michigan, 4,428,372. More than 80 per cent of the apples produced in the following States in 1919 were sold: Washington, Delaware, California, Colorado, Idaho, Texas, Massachusetts, New York and New Jersey.

Maryland Association in Butter Business

The Maryland Dairymen's Association, D. G. Harry, president, Fidelity Building, Baltimore, Md., has recently made plans for engaging in the manufacture and selling of butter and other milk products.

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Packer and Manufacturer
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"EDDYS"**BRAND**

Canned Food, Jellies, Preserves
Plum Pudding, Sauces, Table Delicacies

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PRIDE OF THE FARM**TOMATO CATSUP**

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The world wide favor with which all Libby products are met is the highest endorsement of the long standing Libby ideal—to package only foods that can be recommended for their high standard of purity and excellence.

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The Right to Sell Hops

Hops are a legitimate farm product that everyone has the indisputable right to grow and sell.

It's no more unlawful for you to sell Hops than to sell sugar.

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Washington, D. C.

No Restraint of Sugar Trade, Says U. S. Attorney General

Department of Justice Disposes of Anti-Trust Suit Against American Sugar Co.—Finds It No Longer in Dominant Position

The Attorney General has announced the approval of a draft of a decree to be promptly submitted to the United States District Court in New York City, finally disposing of the pending anti-trust suit against the American Sugar Refining Company and others.

This suit was begun by the Department of Justice in November, 1910. The taking of testimony proceeded actively over a period of several years. Some months ago the Attorney General caused an investigation to be instituted to ascertain the existing conditions in the industry and the action taken today is the result thereof.

Combination Existed Prior to 1910

The decree finds in substance that a combination in restraint of the trade and commerce in refined sugar existed at and prior to the filing of the petition in 1910, but recognizes the changes which have occurred in the industry, which may be largely attributed to the pendency of this suit. The American Sugar Refining Company has sold the stocks of many corporations, its ownership of which was challenged by this petition, and in other companies has divested itself of a portion of its holdings and of control of those companies so that it no longer occupies the dominant position in the industry which it held at the time of the filing of the petition.

Safeguards Public

The decree fully safeguards the interests of the public by prohibiting the American

Sugar Refining Company from taking any part whatsoever in the management or operation of the National Sugar Refining Company, the Great Western Sugar Company, or the Michigan Sugar Company, being important companies in which it now owns a minority interest, and further prohibits the American Sugar Refining Company, directly or indirectly, from increasing its proportionate interest in any of such companies. The decree further enjoins all of the defendants from in any manner whatsoever continuing to carry on the combination in the marketing of refined sugar which was the subject matter of the petition.

Commenting on the decision of the Attorney General, Earl D. Babst, president of the American Sugar Refining Company, said:

"Naturally we are pleased with the official announcement of Attorney General Daugherty disposing of the pending anti-trust suit against this Company. We are gratified that the government approves the position of the Company in the industry, and especially that it approves the administrative conduct of its affairs. Standing between producers and consumers, the business of sugar refining will always have many difficulties to meet and to overcome. There is large excess sugar refining capacity in the country which brings about the finest sort of competition, that of securing the good-will and buying approval of the public."

Specialty Men Elect Officers

The New York Auxiliary of the American Specialty Manufacturers' Association held its annual meeting at the regular weekly luncheon at Hotel Pennsylvania recently and elected the following officers:

President, Milton Rich of the Armour Grain Company.

Vice presidents, F. D. Chase of the Joseph Burnett Company and H. M. Pontin of the Beech-Nut Packing Company.

Secretary, F. E. Mendes of the Corn Products Refining Company.

Treasurer, W. B. Washburn, Jr., of the Federal Sugar Refining Company.

Directors—The above and W. Heckman of the Welch Grape Juice Company, E. D. Henderson of the Kellogg Toasted Corn Flake Company and H. B. Conselyear of the Nestle's Food Company.

Mrs. Downing Head of Armour Food Economics Department

Mrs. Helen Harrington Downing, for the last two years a lecturer on food subjects in southern and western states, has been appointed director of the department of food economics of Armour & Company. Mrs. Downing is a graduate of the Toledo University Training School and the Boston School of Domestic Science, having had special work in nutrition at Columbia University. Her five years of teaching experience has included home economics and dietetics in schools and colleges. For the past five years she has lectured before universities and women's organizations.

Prune Association Wins its Suit

Suit brought by the Catz American Company, an exporting and importing firm with headquarters in New York, against the California Prune and Apricot Growers' Association of San Jose, recently tried in the California courts, in which it was charged the association had failed to deliver fruit sold the Catz company during the season of 1917, has been decided in favor of the prune growers. In his decision Judge Brown upheld the right of the United States Government to commandeer foodstuffs and war material. This right was exercised in 1918, when the Government took over all foods and material needed for the army and navy, even when the food and materials were covered by contracts held by other buyers. The suit of the Catz company grew out of the refusal of the prune growers to deliver 1917 prunes to that firm after the Government had commandeered a large part of the available stocks.

Evansville Plant Needs Operator

The plant of W. H. Dyer & Company, Evansville, Ind., canners and packers, which was sold at a trustees' sale recently to Frank W. Giese, a local broker, will resume operations as soon as a concern can be obtained to take over the plant. It has been idle for several weeks. Mr. Giese states that production in some lines will be started this year and that by next year the factory will be able to run full time.

Frazer River Salmon Pack

The final salmon pack returns on the Frazer River for this year have been totaled by W. D. Burdis, secretary of the British Columbia Cannery Association at Richmond, B. C. In comparison with 1917, the last big year, the 1921 pack shows an increase in sockeyes of 39,700 cases, and during 1913, the big run four years before that, the complete sockeye pack on the river amounted to 684,596.

A large number of Red Springs were packed this year, the amount being 36,725 cases. White and Pink Springs were not so greatly in demand, though they, too, were plentiful. Only 12,027 cases were put up, including both grades. Blue Backs were a favorite canning fish during the early part of the year, and 7,060 cases were packed. Only 1,220 cases of Steelhead were canned.

Though officially this fish does not rank as high as the sockeye, it has the reputation among connoisseurs as being one of the most delicately flavored of all salmon. They do not run in large numbers and are more of the species of salmon trout. There were more pinks canned this year than any other kind of fish, totaling 192,906 cases. The Coho pack amounted to 117,228 and the chums 60,835. The total for the year amounted to 52,915 cases.

Death of George A. Bayle

George A. Bayle, former president of the Bayle Food Products Company of St. Louis, Mo., originator of horseradish mustard and first manufacturer of peanut butter on a commercial scale, died December 18 at his home in that city.

Mr. Bayle's entire business life was spent in the manufacturing of food products. In 1888 he embarked in business on his own account and up to 1914 operated as an individual under the firm name of George A. Bayle. In that year, he incorporated as the Bayle Food Products Company and served as president until the fall of 1920. Mr. Bayle was one of the very earliest salters of peanuts and during his career watched with great interest the development of the peanut crop and the growth of the many peanut products well known to the trade and extensively manufactured throughout the country.

"Eat More Meat" Campaign Favored

Meat consumption has fallen off 28 pounds per capita in the United States during the last 20 years, according to a statement of R. A. Gunn in addressing the Corn Belt Meat Producers' Association and Iowa Federated Shippers at Des Moines, Ia., recently at the annual convention. Resolutions were passed at the convention endorsing an "Eat More Meat" campaign.

Cuban Firm Wants Purchasing Agency for American Confectioners

A firm in Havana, Cuba, desires to act as purchasing agent for American confectioners and other users of raw sugar. This firm claims to hold an enviable position in that they can obtain raw sugar at very low prices and can ship from the Cuban sugar mill direct to factories here. The name of this company may be obtained from the Foodstuffs Division of the Bureau of Foreign and Domestic Commerce.

W. V. Frisbie New Head of Bureau of Cooperation

W. V. Frisbie, of Lincoln, Neb., has recently been appointed head of the office of co-operation of the Bureau of Chemistry, Department of Agriculture.

WRITE FOR QUOTATIONS



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We Want Extra Copies
OF THE
NOVEMBER ISSUE
OF
THE AMERICAN FOOD JOURNAL

FIVE HUNDRED extra copies of this issue were printed by the publishers in anticipation of the demand, but so unprecedented was the number of subscriptions starting with this particular number that our supply was exhausted almost immediately on the date of publication.

WE are mighty appreciative of our readers' interest as manifested by this extraordinary demand, but we should certainly welcome any copies returned to us. In all such cases, we shall be glad to extend the respective subscriptions for the period of one month.

The American Food Journal
Floral Park, New York

Business and Editorial Offices;
25 East 26th Street New York City

ANNOUNCEMENT

We are very glad to announce that we have purchased the patents and physical assets of the Jagenberg Machine Company, Inc., of New York City, manufacturers of package and labeling machinery.

It is our plan to continue the manufacture and sale of this line of machines with such modifications and practical improvements as our engineering organization deems wise.

Any requests for information or service should be sent direct to our main office, Norfolk Downs, Massachusetts. Such requests will receive prompt and efficient attention.



PNEUMATIC SCALE CORP., Ltd.

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BOSTON

NEW YORK

CHICAGO

1921 Sardine Canning Season A Light One

News dispatches from Eastport, Me., the center of the Maine sardine industry, state that the sardine canning season of 1921 is over and will go down in records as the poorest year with the smallest pack since 1901. The total pack is estimated as slightly under 1,000,000 cases, compared with 3,000,000 cases in 1919 and 2,500,000 average. The prosperity of the industry, which is the mainstay of such places as Eastport and Lubec, depends altogether on the regularity of the supply of small herrings, which are the American sardine. At times this year there have been more herrings than the factories could take care of, but these big runs were few and far between, a decided scarcity prevailing most of the season. The opening price for herrings last spring was \$5 a hogshead, but lately it has been as high as \$10, with occasional sales at \$15, and the average during the fall was about \$7.50. The sardine market has been sluggish, having been overloaded with the product of the seasons of 1919 and 1920, but supplies are rapidly being cleared up and the packers confidently expect much higher prices before spring.

May Secure "Exporter's Index"

At the request of the newly formed Canned Goods Division of the United States Department of Commerce the National Wholesale Grocers' Association is co-operating in the preparation of a list of grocers interested in having their names added to the Government's list of responsible American concerns to receive without charge confidential information gathered by the Government and issued from time to time to concerns whose names are to be included in the "Exporter's Index." To be listed in the "Exporter's Index" grocers must fill out a certain blank regarding their financial responsibility. The blank can be procured from the National Wholesale Grocers' Association.

California Canning Peach Growers

The California Canning Peach Growers, Inc., is the name of the newest farmers' co-operative organization in that State. Dr. E. S. Moulton, president of the Sutter Peach Growers' Association, was chairman of the meeting held at Stockton at which the new organization was launched, and Senator M. B. Harris, of Fresno, acted as legal advisor. The Sutter County Association, which operated this year in that county only, will be merged with the new State organization December 1.

Gaskill New Chairman of Federal Reserve

Nelson B. Gaskill of New Jersey became chairman of the Federal Trade Commission December 1, for a term of one year. Mr. Gaskill, who was vice-chairman during the past year, succeeds to the chairmanship under the rule of the commission which provides for rotation in the office of chairman among the several commissioners.

Mr. Gaskill was appointed to the commission in December, 1919, to fill an unexpired term caused by the death of John Franklin Fort. He entered upon duty in February, 1920. He served as assistant attorney general of New Jersey from 1906 to 1914. He served as a lieutenant colonel during the World War.

A Bottle a Day Keeps the Doctor Away

It is a long cry from the early insatiable "pop" of our forefathers to the sparkling, nutritive and thirst-quenching beverages of the modern bottler.

This is the theme of an interesting little pamphlet just issued by the Adriance Machine Works, Brooklyn, New York, manufacturer of bottle filling and capping machinery, and distributed in large quantities to the bottlers of the country for general dissemination among the public.

The day is past, says this pamphlet, when the sole reason for the existence of these drinks was their "nose-tickling or thirst-quenching qualities." Carbonated drinks also possess tonic properties and food and dietetic values and stand alone among beverages.

"They actually promote the processes of digestion by causing an abundant secretion of the digestive juices. As a tonic they stimulate the entire nervous system and invigorate the over-fatigued body. The sugar contained in the fruit juices, extracts and concentrates—on an average about three-fourths of an ounce—when added to the carbonated water becomes invert sugar—the purest and most concentrated food known. Invert sugar needs no digestion; it is carried directly into the blood, causing an immediate experience of exhilaration and well-being. The so-called soft drink contains on an average 167 calories of energy forming material to the pound, more than is contained in oysters, clams, lobsters, asparagus, string beans, tomatoes, beef or chicken soup.

New Cocoa Product Put on Market

"Choconilla" is the name of a new cocoa product recently put on the market by the Galloway-West Co., Fond-du-Lac, Wis. It may be used in the concoction of delicious drinks or in the preparation of desserts, such as puddings, pies and cakes. The inventor, W. A. West, set about perfecting a process that would break up all the fine cells of the cocoa. He claims to have accomplished this by putting the cocoa in lacquered cans, heating it very hot and retaining that heat long enough to cause every particle of cocoa to expand and break open, discharging the contents into the can. There it remains until opened and used by the consumer. The user will note, it is said, that there are practically no settlings in a cup of "Choconilla."

Dr. Wesner, head of the Columbus laboratory of Chicago, following a thorough analysis of "Choconilla," is reported as making this statement:

A glass composed of 5 ounces of 3.5 milk and 2 ounces of "Choconilla" has 24 per cent more protein than a glass of 7 ounces of 3.5 milk. The "Choconilla" mixture also contains 8 per cent more food value than a glass of plain milk.

"Milk for Health" Campaign in Cleveland

An educational advertising campaign on the health value of milk has been started in Cleveland newspapers by the Cuyahoga County Public Health Association.

Statement of Ownership and Management of The American Food Journal

Statement of the ownership, management, circulation, etc., required by the Act of Congress of August 24, 1912, of The American Food Journal, published monthly at Floral Park, N. Y., for October 1, 1921. State of New York, County of Nassau,

Before me, a Notary Public in and for the State and county aforesaid, personally appeared J. T. Emery, who, having been duly sworn according to law, deposes and says that he is the Business Manager of the American Food Journal, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher, The American Food Journal, Inc., 25 East 26th St., New York City.

Editor, C. E. Wright.

Managing Editor, Leo H. Joachim.

Business Manager, J. T. Emery.

2. That the owners are: (Give names and addresses of individual owners, or, if a corporation, give its name and the names and addresses of stockholders owning or holding 1 per cent or more of the total amount of stock.)

J. T. Emery, 25 East 26th St., New York City.

Karl M. Mann, 25 East 26th St., New York City.

C. E. Wright, 25 East 26th St., New York City.

Louis F. Dodd, 25 East 26th St., New York City.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

J. T. EMERY,

Business Manager.

Sworn to and subscribed before me this 21st day of December, 1921.

(Seal)

T. FOSTER GAINES,

Notary Public of New York.

(My commission expires March 30, 1922.)

The American Food Journal

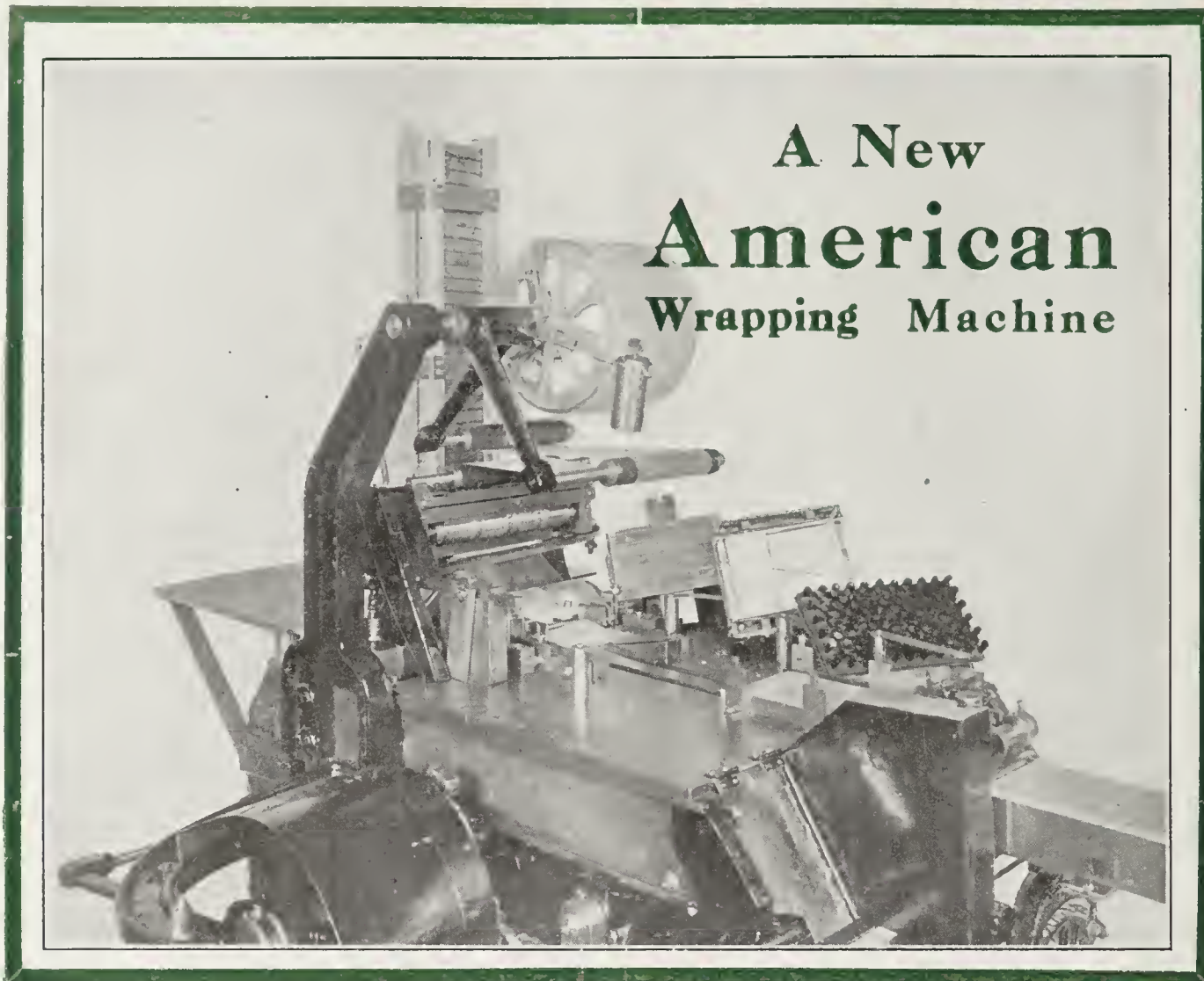
The National Magazine of the Food Trades



JAMES MOORE, New President, Nat'l Canners' Ass'n

See page 7 and following pages for full report of Annual Convention at Louisville

Other Articles in This Issue: Scientific Research in Canning. Referee Reports on Milk Compounds. Dietary Value of Gelatin.



This Machine Wraps 110 Packages A Minute

It was built especially to wrap the William H. Luden cough drops.

The sealing is done by heat. You, of course, realize the many advantages of heat-sealing packages so as to prevent insects and dirt from getting in the contents, and also the advantage of keeping the contents either free from moisture, or retaining its original moisture as the requirements of the product may be.

Some Interesting Facts Regarding This Wonderful Machine

THE cartons are first wrapped in wax paper and then hermetically sealed by passing under a hot plate. This plate is shown in the illustration in the middle of three plates which are lifted off to show the operation of the machine. The first plate is merely a tension plate which holds the paper in place after it has been folded. The second plate, which in the cut contains a package, is the heater, showing how the heat is applied to both the top and the ends. The third plate is a brush which smooths out any irregularities, insuring a perfect fold and seal.

YOU will notice that the machine is very accessible and that these top plates are very easily removed. You will also notice that there is but one working part above

the table, this being the tucker, which is shown just in the act of descending to fold the paper around the carton just leaving the roll.

YOUR packing problem may require a similar machine. Our engineers are at your disposal to help you in solving any wrapping problem that may confront you. Stop at our factory, if possible, to see the machines of various types in operation, or mail us samples of the packages you may be interested in having wrapped. We will return your samples, wrapped as they would be when delivered by our machines, and will furnish you with suggestions and estimates for obtaining maximum results in wrapping your product.

ADDRESS:

The American Machinery & Equipment Corp.
265 WASHINGTON AVE., NEWARK, N. J.

Volume XVII

The American Food Journal

Number 2

The National Magazine of the Food Trades

Established 1906

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Entered as Second Class Matter at the Post Office at Floral Park, N. Y., under Act of March 3, 1879.



THEIR DAILY DIET
 Non-laxative foods
 eggs
 milk
 cheese
 Only corrective food
 Fleischmann's Yeast
 fresh daily

meals that demanded laxatives—yet no need for laxatives

UNDER a scientist's direction, for one whole month two men and two women ate Fleischmann's Yeast together with the most constipating diet they could get.

They were given eggs, milk, cheese—all constipating foods—and yet they did not suffer from constipation.

When they ate the same constipating diet without Fleischmann's Yeast as a corrective, all four were constipated.

Thousands of men and women all over the country have found that eating Fleischmann's Yeast daily gives them normal and regular elimination. Fresh yeast is rich in the elements which increase the action of the intestines and keep the body clean of poisons.

Add 2 or 3 cakes of Fleischmann's Yeast to your own daily diet. You'll soon find that laxatives are unnecessary. Your grocer will deliver it fresh daily.

"A POUND OF CALUMET BAKING POWDER"

That's the way the modern housewife describes her favorite leavening when ordering groceries; and her order is filled with an honest, 16-ounce delivery.

The day of ordering goods by the can, by the bottle, or by the bag, has passed. You can do yourself and your customers a real service by educating them to protect themselves against deceptive containers.

The eye does not always catch the net contents terms shown on the package. Educating your trade that pounds and ounces mean dollars and cents—that 12 ounces is not a pound but only three-quarters of a pound and that short weighing and short measuring is short changing, is one of the services which the independent retailer can render through the face to face methods—an advantage that he enjoys over mail order concerns.

Calumet is put up in standard packages, quarter-pounds, half-pounds and full-pounds. Some baking powders have reduced their sizes. Their 8-ounce cans have been cut to 6, the 16-ounce cans to 12 ounces. A pound can of Calumet contains 16 ounces today as it did thirty years ago. There has been no change in the quantity or the quality.

Be sure that your customers get a 16-ounce pound of Calumet.

CALUMET BAKING POWDER CO.
 CHICAGO, ILLINOIS

The American Food Journal

The National Magazine of the Food Trades

Established 1906

Vol. XVII

FEBRUARY, 1922

No. 2

Canners Await Big Business Revival

Unanimous Opinion at Great Louisville "Disarmament Conference" That Industry Has Successfully Weathered Worst Depression

OPINION was almost unanimous among the six thousand delegates who attended the great annual joint convention given by the National Canners' Association, the Canning Machinery and Supplies Association and the National Food Brokers' Association at Louisville during the week of January 16-20, that the canning business has already seen its worst depression and that the stage is already set for a revival in this industry.

A spirit of co-operation among all the trade elements in the canning industry characterized this convention, which was termed by the new president, James Moore, of Rochester, "a disarmament conference," in view of the difficulties mutually experienced by manufacturers and brokers in adjusting themselves to the depressed conditions of the past year. Confidence was freely expressed on all sides that this opportunity for exchange of problems and the establishment of mutual understandings had actually gone a long way in ironing out the last vestiges of disagreement between any and all important factors concerned.

Former President Harry P. Strasbaugh touched closely the prevalent sentiment at the open meeting of the National Canners' Association held at the Scottish Rite Cathedral, January 16, in pointing out that the canning industry is being impeded at the present time by high freight rates and that just as soon as these are eliminated production and consumption alike would be speeded up.

The association's committee at the present time, Mr. Strasbaugh continued, is making every effort to see that freight rate classification and commodity rates are made more favorable towards canned foods. "The canning industry will be unable to function normally," he declared, "until freight rates are reduced."

Such normal functioning, Mr. Strasbaugh continued, is of importance to the entire country. "According to Government statistics," he said, "canned products amounted in 1919 to over \$800,000,000; at least from \$200,000,000 to \$250,000,000 was paid that year to the farmer by the canner for raw produce. Considering the wheat crop of 1921, which

was worth about \$1,000,000,000, it is readily seen that the canning crop of 1919 represented about one-fourth of the value of the 1921 wheat crop to the farmer."

Would Discourage Poor Goods

Mr. Strasbaugh's recommendations to the association were that it continue its efforts to discourage intentional canning of inferior products, that every effort be made to encourage ample capitalization among canners, that members of the association co-operate with its traffic committee, with the Bureau of Foreign and Domestic Commerce, Washington, and with the executive officers of their association.

Ogden S. Sells, of Buffalo, N. Y., former president of the Canning Machinery and Supplies Association, spoke of the financial needs of the canner and emphasized the dual role of the canner as both producer and warehouseman:

"The almost complete change in city life from that of individual homes, as was the case a few years ago," stated Mr. Sells, "necessitates the householders practically purchasing their daily bread on the day that it is eaten." Mr. Sells went on: "The extreme convenience of canned foods meets this need in a manner impossible of achievement were it not for their non-perishable qualities. The food supply of any large city is never but a few days in advance of consumption, and it is only by the fact that canned foods are conveniently shipped, even in severe weather,

that a large part of our population can be certain of a normal food supply from day to day.

Proper Financing Necessary

"The great need of the canner of to-day is proper finance. He must be put in position to fill the function of both a producer and a warehouse where the goods can be stored from the flush season of production until this day of consumption which eventually comes. For the protection of the people, therefore, it is absolutely necessary that considerable thought and effort be given to this problem of finance that they may always be served as they have in the past."

Two representatives of the Federal Government were in

WHAT THE CANNING INDUSTRY NEEDS

(Recommendation of Former President Strasbaugh)

1. Continuance of efforts along the line of discouraging intentional canning of inferior products.
2. Ample capitalization among the canners in keeping up with changing methods of distribution.
3. Co-operation on the part of all members of the National Canners' Association with the traffic committee.
4. Co-operation on the part of the Association with the newly established Canned Foods Division of the Department of Commerce.
5. Co-operation on the part of the members with the executive officers in bringing about the use of proper labels.
6. Closer relationship between the farmer and the canner.

Louisville to address the canners. Walter G. Campbell, acting chief of the Bureau of Chemistry of the Department of Agriculture and B. R. Hart, specialist in canned goods, Department of Commerce, were both present at the opening sessions and addressed the delegates on the role of the Government in the canning industry.

Mr. Campbell's address concerned itself principally with the Food and Drugs Act and indicated how the enforcement of this measure on the part of the Government's representatives had inspired confidence in the contents of the can and by so doing had been a great boon to the canning industry as a whole.

Mr. Hart went into detail about the reorganization of the Department of Commerce to enable it to aid the canners more effectively. He stressed the fact that the time has come when the canners should develop their overseas markets and pointed out the service the newly organized foodstuffs division of this department under the direction of E. G. Montgomery, was prepared to offer to the canning industry.

Charles H. Bentley, vice-president of the California Packing Corporation, told of the accomplishments of research committee of the National Canners' Association. He spoke of the prejudice that had arisen in the minds of the people as a result of the ripe olive poisonings and suggested that the prejudice could be eliminated only through the means of intelligent scientific investigation combined with a thorough-going publicity campaign.

"The expression 'ptomaine poisoning' has been used to cover a multitude of sins, for many doctors found it a convenient way to cover up their ignorance, while the newspaper reporter and headliners found it a startling and alarming phrase to catch the eye," Mr. Bentley said. "The expression is still used, and for the most part inadvisedly, but we hear comparatively little of ptomaine poisoning nowadays."

Penny Change Urged as Grocery Policy

R. W. McCreery, of Marshalltown, Iowa, discussed increased distribution and pressed hard the importance of penny change to equalize profit margins and prices of canned food. He spoke in opposition to the five, ten, fifteen-cent method of quoting and making selling prices and attributed to that the complaints of continued high prices and the success of the chain stores in taking away business from the individually-owned stores. The grocer, he stated, should carry only the highest grade if he so advertises and "should be willing to split a five-cent piece into five pennies in regard to the selling price."

A strong plea for the chain store grocers was given by Harry L. Jones, president of the National Chain Store Grocers' Association, Brooklyn, N. Y., who emphasized the economies that have resulted from this form of organization of the retail grocery business and indicated the many advantages in purchasing and selling that accrued to both the companies and the consumers. Comment was made by convention delegates on the fact that this was the first occasion on which the National Canners' Association had given official recognition of the chain stores at one of its conventions.

Retailers Disagree with Chain Store Arguments

Alfred Beckman, secretary of the National Retail Grocers'

Association, delivered an address originally prepared by Francis E. Kamper, president of the association, who was unable to be present. In a well-delivered reading of this paper, Mr. Beckman attempted to answer one by one the arguments of the chain store advocates and indicated the many opportunities the retailers had to co-operate with the canners. He emphasized the support given to Canned Foods Week by the grocery men and the many other instances of good will toward the manufacturers.

A forceful plea for co-operation in putting out only the best of products was made by J. H. McLaurin, president of the Southern Wholesale Grocers' Association. Mr. McLaurin predicted better business conditions with the adoption of such a policy.

James Moore of Rochester, N. Y., president of the New York Canners, Inc., was chosen by the canners at their second day's session to serve them during 1922 as chief officer of their organization. Other officers elected were: James A. Anderson, Morgan, Utah, first vice-president; Chas. H. Bentley, San Francisco, Cal., second vice-president; Frank E. Gorrill, Washington, D. C., re-elected secretary-treasurer for the fifteenth consecutive term.

There were also elected for a term of three years the following new directors: H. L. Herrington, Ogden, Utah; Elmer E. Chase, San Jose, Cal.; Chas. H. Bentley, San Francisco, Cal.; William Timson, San Francisco, Cal.; J. W. Hutchinson, Randolph, Wis.; C. H. Sears, Chillicothe, O.; B. W. Weller, Oak Harbor, O.; E. B. Deming, South Bellingham, Wash.; E. G. McDougall, Chicago, Ill.; W. R. Roach, Grand Rapids, Mich.; Robert S. Shriver, Westminster, Md.; D. H. Stevenson, Baltimore, Md.; W. V. D. Maas, Keokuk, Ia.; C. O. Dawson, Blair, Neb.; Sol Brown, New Orleans, La.; S. E. Comstock, New ark, N. Y.; I. Stephany, Seaford, Del.; D. E. Winebrenner, Hanover, Pa.; L. R. Hardenbergh, Chicago, Ill., and W. D. Campbell, Indianapolis, Ind.

Harry P. Strasbaugh, of Aberdeen, Md., retiring president of the association was given a demonstration as a tribute to his work in directing the affairs of the organization during the past year.

Paul E. Kroehle, of Cleveland, O., retiring president of the National Food Brokers' Association,

discussed matters of general interest to the canners.

Problems Facing the Canner

"Two great problems face us who are in the business of food," said Mr. Kroehle. "First, the necessity of the application of the rule of supply and demand. The producers must study the consumer's economic condition and intelligently conduct their businesses in accord therewith. There must be avoided any probability or possibility of too excessive a pack which usually results in demoralization and disaster to themselves. Secondly, the necessity of the spirit of 'getting together.' Not by any means the trust idea but rather the direct opposite. All elements of trade or the various links in the chain of food distribution must deliberately study the situation and function in a friendly co-operative spirit of mutual understanding and sympathy. The year of 1922 will then run its course with re-adjustments in food constantly occurring without bringing in its wake further losses to the producers and distributors."

CANNING INDUSTRY EMERGING FROM DEPRESSION

"WE have absolute faith that we have passed through the worst period of depression that the canning industry has ever experienced. We are conservatively optimistic that the industry will be on the up-grade from now on.

"The National Canners' Association represents an investment of capital of over \$500,000,000 and the value of the products handled by the association amounts to \$1,000,000,000. The prosperity of the organizations represented by these figures is dependent upon the purchasing power of the agricultural interests. We have sustained the same losses which the farmers suffered and we shall proportionately prosper with their improvement."
—President JAMES MOORE, of National Canners' Association.

New Advisory Committee for Research Laboratory

What was said to be one of the most progressive moves toward further scientific development of the canning industry was the appointment at the second day's session by the National Research Council of an advisory committee for the research laboratory of the National Canners' Association in Washington, D. C.

"This committee will be composed of some of the most active scientific men in the country," said Henry Burden, of Casenovia, N. Y., chairman of the National Canners' Association research committee.

"In accordance with its policy of promoting industrial research in all possible ways, the research council at the request of Dr. W. D. Bigelow, chief chemist of the National Canners' Association has appointed an advisory committee for the canners' laboratory. This committee consists of the following men: W. D. Bancroft, chairman, professor of physical chemistry, Cornell University; E. B. Fred, professor of bacteriology, University of Wisconsin; T. B. Johnson, professor of organic chemistry, Sheffield Scientific School, Yale University; E. L. McMeans, McMeans and Tripp, Indianapolis; L. B. Mendel, professor of Physiological chemistry, Yale University; C. L. Morton, professor of Industrial Physics, Massachusetts Institute of Technology; and A. E. White, professor of metallurgy, University of Michigan.

Value of Advisory Committee

"It will be of inestimable value to the laboratory to have such a group of men as this informed of the detail of our work and available for consultation with the director of this laboratory," stated Mr. Burden." In the meantime, the better grasp these men will have regarding the processes of the canning industry and its aims and accomplishments will result in more adequate and more accurate instructions to their students, which is in line with the desire of the association for the highest type of publicity."

Army Subsistence Officer Praises

Canned Foods

Canned food was described at this session as the "best food for the army," by Major J. H. Adams of Washington, chief of subsistence, Quartermaster General's Office, who was a guest of honor at the canners' association meeting at the Seelbach hotel.

"Everybody from the Secretary of War, the Quartermaster General and on down is keenly interested in feeding the army and determined that the present high standard shall be maintained," said Major Adams at the Seelbach yesterday.

"Good food not only builds up the physique but is one of the main factors in maintaining the morale. The soldier's ration costs today about thirty-two cents per day. That seems low, but we have the advantage of wholesale prices and do not have to consider a profit. It is really necessary for us to have the best of everything—say, for instance, in corn or tomatoes, where we buy in such immense quantities, if we serve a soldier with an inferior grade, he would not come back for another helping. Therefore, we would have a great stock on hand and no way to dispose of it. That is one of the main reasons we provide the best—another, is our pride.

"As for canned foods, if it had not been for them, the

American Expeditionary Force could not have been successfully sent and maintained across the water; in fact, without canned foods, we could not maintain an army of any considerable size in this country, much less on foreign soils.

"An idea of the important part played by canned foods may be gained when I tell you the total amount of such foods purchased by the War Department for the American and Allied Forces, during the year and a half that the United States was in the war, amounted to the following:

Canned vegetables	900,000,000 pounds
Canned fruits	60,000,000 pounds
Canned milk, evap. and cond.....	240,000,000 pounds
Canned meats	324,000,000 pounds
Canned fish and seafoods	209,000,000 pounds

"American canned food is the best in the world, with a few minor exceptions. The French are known for a certain high grade peas and the Norwegians have attracted attention with baby carrots. I have no doubt, however, where special claims are made for foreign goods, our own people feel confident they are meeting the same standards of excellence."

WHAT CO-OPERATION IN CANNING INDUSTRY MEANS

"**I**N union there is strength.' This is an old adage, but its truth remains. As decades roll by and one generation follows another, new wonders are revealed to us and yet more terrible dangers are also revealed as possible menaces to our comfort and safety.

"Where individual canners have felt themselves strong, even the strongest have felt the necessity of association with others of their kind, and where an association of a few has been formed, there has been found the necessity for a greater. Where national associations exist in two industries closely allied as are the canners and the brokers, it is but reasonable and obvious that exceedingly close relations should bind them together."—PAUL E. KROEHLE, Ex-President, National Food Brokers' Association.

Sectional Meetings of Canners

Shortly after the second day's general meeting of the canners, the food brokers held their first session at the Seelbach and simultaneously four sectional sessions of the canners' association began. The tomato section met at the Scottish Rite Cathedral, William Silver, of Aberdeen, Md., presiding. Four addresses were on its program, the first three of which covered the entire range of the tomato canning industry. They were "The Field," by C. G. Woodbury, director of the bureau of raw products research, National Canners' Association, Washington; "The Factory," B. R. Hart, specialist of the Bureau of Foreign and Domestic Commerce, Washington; and "The Consumer," Albert Ivison, a member of the executive committee of the National Chain Store Grocers' Association, Louisville. The remaining address was on "Canned Foods Week," and Royal F. Clark, Beaver Dam, Wis., chairman of the National Canned Foods Week committee, was the speaker.

The molasses and sirup section met at the Watterson Hotel and discussed the cane and maple sirup industry. L. B. Whitfield of Montgomery, Ala., presiding. The pump-

kin section also met at the Watterson, with Richard Dickison of Eureka, Ill., in the chair. C. J. Mitchell led in discussion of standards for canned pumpkin, after which a code of standards was adopted designed to guarantee the highest degree of health and safety in canned goods.

Beans were the theme of a joint session of wax, green and baked bean canners at the Seelbach, H. E. Halstead, of Cortland, N. Y., presiding for the first two sections, and E. P. Gale, of Marshalltown, Ia., for the baked bean section. C. G. Woodbury, Washington, D. C., described the stringless bean and methods for preserving that variety efficiently. B. R. Hart spoke on canning practices which he said were now brought to the highest degree of perfection and safety. Merritt Green, Jr., of Marshalltown, Ia., delivered an address on "What Do You Know About Beans?"

Technical Problems at Subdivision Meetings

Sectional meetings of the canners continued throughout the third day of the convention, many important addresses being

delivered on the technical aspects of the respective branches of the canning industry.

The pea section, which met at the Scottish Rite Cathedral with James A. Anderson, Morgan, Utah, in the chair, had a program of six such talks. The fruit section, at the Seelbach, with F. H. Van Eenwyk, East Williamson, N. Y., presiding, had only two, as was the case with the kraut section, which met at the Tyler, B. E. Babcock, Phelps, N. Y., acting as presiding officer.

At the latter section, William Clendenin of Chicago, gave an interesting talk on the medicinal value of sauer kraut.

New light was thrown upon many of the packers' problems by Herman Melten of Lansing, Ill., and several suggestions were made by the speaking looking forward to their solution.

Sweet Potato Canners Meet

There was a special meeting of sweet potato canners at the Hotel Henry Watterson on the same day. John A. McDermott, Mobile, Ala., president of the Southern Sweet Potato Canners' Association, was in the chair and delivered an address on "Co-operation." The other speaker was J. W. Stone, whose subject was "Progress and Development of Yellow Yams."

On Thursday, January 19, the last of the canners' sectional meetings were held. The corn section convened at the Scottish Rite Cathedral with J. W. Hill, Des Moines, in the chair. Elected officers for the next year for this section include: chairman, Ira Whitmer, Bloomington, Ill.; vice-chairman, E. C. Thatcher, DeGraff, Ohio, and secretary, Robert Shrider, Westminster, Md.

Milk Section Hears Dr. Bigelow

The milk section met at the Seelbach with Walter Page, Chicago, presiding, and the tomato catsup section convened at the Hotel Henry Watterson with Wade L. Street, Chicago, as presiding officer. Dr. W. D. Bigelow of Washington, director of the research laboratory of the National Canners' Association, delivered addresses to both the corn and milk sections. Using charts and illustrations, Dr. Bigelow discussed the recent work of the laboratory in connection with the destruction of bacteria and desirable temperatures in canning.

The convention of the National Food Brokers' Association opened on Tuesday morning, January 16, Paul E. Kroehle, retiring president of the association, presiding. Mr. Kroehle's address was largely devoted to a discussion of matters of special interest to the food brokers' association. Questions particularly touched upon, included advocacy that the association's president be elected for a term of only one year and not be eligible for re-election, that the association have only one vice-president, that an executive secretary be employed, and that the 750 members of the organization should co-operate with the canners in putting across Canned Goods Week.

Stabilization of Market Imperative

"I must impress upon you," Mr. Kroehle said, "the necessity of using extreme caution and unusual precaution in the wording of your telegrams and letters, especially of your circular letters. The situation is serious and we must help in it. The market must become stabilized or else ruin faces our friends."

"The whole system of sales distribution must function as hitherto. Distributors must buy futures and sell futures to

the retail trade. If the jobber does not function as hitherto the canner either faces receivership or the necessity of establishing new channels of distribution.

"This latter can occur by a consolidation of canners, until by reason of size and world importance, our national existence can be secured for any necessary purpose. This demands serious consideration. The jobbers must not be asked to hold the bag."

Following Mr. Kroehle's address, talks were made by Harry P. Strasbaugh, retiring president of the National Canners' Association; J. W. Herscher, president of the National Wholesale Grocers' Association; J. H. McLaurin, president of the Southern Wholesale Grocers' Association, and Fred Mason, president of the American Specialty Manufacturers' Association. Appointment of committees on nominations and resolutions and reports of the organization's secretary and treasurer brought the meeting to a close.

Convention Called "Disarmament Conference"

At the banquet given by the brokers on Tuesday evening, James Moore, the newly-elected president of the Canners' Association, praised the work and spirit of the joint convention and designated it as "a disarmament conference for the purpose of perfecting a league of associations engaged in producing and handling food."

Revelations were made at the banquet showing that all had not been well with the canning industry since the war, and that disputes had arisen and a food war been proclaimed which has injured the entire machinery of production and distribution of canned goods. More than two dozen speakers stressed the necessity of harmony among the wholesale grocers, the canners and the food brokers. Lessons have been learned by all branches of the industry, it was said, since the "orgy of high prices," that convinced them the food broker is absolutely necessary as a link between the canner and the wholesaler.

Frank E. Gorrell, secretary of the National Canners' Association, was the first speaker introduced by Paul E. Kroehle, retiring president of the brokers. Mr. Gorrell said he had been fighting pessimism since the war and did not hold with the majority that there is any danger of a breakdown in the canning industry. "Be optimistic and make lemonade out of the lemons handed you," he urged. "The sooner you put back of you your

past losses the better. There are enough men in this room at the biggest gathering of the kind I have ever witnessed, to bring about better conditions in the whole country by just getting to work and stopping their constant criticism and knocking of each other."

Many Speakers at Food Brokers' Banquet

Harry Strasbaugh, retiring president of the canners, read a telegram from the Oklahoma state grocers' convention at Ardmore, expressing the hope that the Louisville get-together meeting would result in co-operation of grocers, canners and brokers. Other speakers were presidents of various associations of the industry: J. Davidson, of the National Wholesale Grocers; J. H. McLaurin of the Southern Wholesale Grocers; Ogden S. Sells of the Canning Machinery and Supplies Association; Fred Mason of the Specialty Manufacturers' Association; Royal Clark of the Western Canners' Association; Elmer Chase of the California Canners' League; other officials present included Walter J. Sears and Frank Gerber of the National Canners' Association; William Web-

A PARABLE—AND REALITY

"WEATHER reporters and general business observers are plentiful, but real salesmen are few and far between, and they're working hard.

"When you think that you can't get it over, just remember the story of the two little frogs that fell into a crock of milk one dark night. One of them swam for a time, tried repeatedly to climb the smooth sides of the crock and finally gave up in disgust, quit and was drowned. The other little frog was made of different stuff—he didn't try the hopeless job of climbing out of the crock, but he kept on swimming all night long. When the morning dawned and he could gaze about a bit, he found that his swimming had churned a large island of butter for him to rest on, and, caught in it, were five fat flies all nicely buttered and ready for breakfast. Draw your own moral from this story"—
OGDEN S. SELLS, Canning Machinery and Supplies Association.

ber of the California Walnut Growers' Association; T. C. Tucker of the California Almond Exchange; James M. Hobbs, William Nichols, Yancey R. Altsheller, Thomas Meehan, Walter A. Frost, Charles S. Jones, Joseph Keevers, Harry N. Dailey, Joseph Kline and E. A. Stolzenberger, of Louisville.

Ford to Head Brokers

At the elections held on the following day, the brokers elected as their new president James L. Ford of St. Louis, who is said to be the youngest man ever to have held that office. He is 40 years old. Other officers elected included: First vice-president, Walter J. Townsend, New York; second vice-president, James M. Hobbs, Chicago; third vice-president, Mart Ebeling, Dallas, and treasurer, Oswald Lockett, Jr., Chicago.

The state directors chosen by the food brokers were:

Alabama, O. C. Holland of Montgomery; Arkansas, W. W. Johnson of Little Rock; California, J. O. Crawford of Los Angeles; Colorado, Mortimer Simons of Denver; Florida, George W. Thomas, Jr., of Jacksonville; Georgia, N. E. Martin of Atlanta; Idaho, H. H. Cornell of Boise; Illinois, W. R. Orr of Danville; Indiana, L. A. Parker of Evansville; Iowa, John O. Knutson of Sioux City; Kansas, Thomas B. Griffith of Wichita; Kentucky, C. H. Stephenson of Louisville.

Louisiana, Charles W. Mackie, Jr., of New Orleans; Maine, George W. Tilden of Lubec; Maryland, Henry C. Schwab of Baltimore; Massachusetts, Daniel W. Bodell of Boston; Michigan, Floyd E. Bowen of Detroit; Minnesota, Theodore Smith of Duluth; Mississippi, Charles W. Kittleman of Greenville; Missouri, Ward Goodloe of St. Louis; Montana, F. S. Decker, Jr., of Butte; Nebraska, George F. Engler of Omaha; New York, George Nowland of New York; New Mexico, R. P. Woodson, Jr., of Albuquerque; North Carolina, Charles M. Britt of Asheville; North Dakota, H. F. Daum of Columbus.

Ohio, Edward D. Klum of Cincinnati; Oklahoma, W. T. Love of Oklahoma City; Oregon, H. M. Hallard of Portland; Pennsylvania, George A. Buse of Pittsburgh; South Carolina, J. M. Pollock of Spartansburg; South Dakota, Harry L. Schultz of Sioux Falls; Tennessee, Louis R. Donolson, Jr., of Memphis; Texas, Ned Linnartz of San Antonio; Utah, Ferd J. Fabian of Salt Lake City; Virginia, John M. Horton of Roanoke; Washington, E. H. Hamlin of Seattle; West Virginia, T. G. Dabney of Charleston, and Wisconsin, F. F. O'Brien of Milwaukee.

Englehart New President of Machinery Men

The Machinery and Supplies Association, meeting at the Hotel Henry Watterson on Tuesday, elected Frank C. Englehart of Chicago as president. Ernest E. Finch, Cincinnati, was elected vice-president, and J. A. Hanna, Cadiz, Ohio, was re-elected secretary, at the session of the association in the Hotel Henry Watterson. The following were elected to the board of directors: Thomas E. Lester, Chicago, to fill the unexpired term of Mr. Finch, and F. H. Langenkamp, Indianapolis, and A. L. Whitehurst, Baltimore, for three years each.

At the same meeting at which Mr. Ford was elected, the association presented to James Hobbs of Chicago, the retiring secretary, who served in that capacity for fourteen years, an automobile in appreciation of his services.

A resolution was passed prohibiting members of the association from exhibiting machinery or models at state conventions, deemed prejudicial to the interests of the canners themselves and causing heavy expense to the exhibitors. Violation of the rule will result in expulsion of offenders, according to the provision of the resolution.

Ogden F. Sells, Buffalo, retiring president, said he hoped for an increase in the demand for canned goods of between 55 and 60 per cent during the year, but said that as long as unemployment continues and as long as foreign trade is at a minimum no canneries can be expected to operate on a 100 per cent basis profitably.

Pickle Packers Elect Crandall

At a meeting of the Pickle Packers' Association C. B. Crandall was elected president, succeeding F. A. Brown of Chicago; E. S. Le France, mayor of Winona, and pickler,



LEADERS AMONG THE CANNERS

C. H. Bentley
Vice-President

H. P. Strasbaugh
Retiring President

James Moore
President

was elected to the vice-presidency, and F. A. Vickers of Chicago to the secretaryship. State directors elected were as follows: California, John Cox of San Francisco; Canada, J. A. Wells of Toronto; Colorado, Karl Mayer of Brighton; Connecticut, F. C. Gould of Silver Lane; District of Columbia, W. R. Eley of Washington; Iowa, W. W. Doolittle of Marshalltown; Indiana, G. D. Williston of Fort Wayne; Illinois, Frank Sheppard of Chicago; Kentucky, L. H. Hirsch of Louisville; Michigan, George S. Walker of Grand Rapids; Minnesota, I. V. Gedney of Minneapolis; Missouri, L. Maull of St. Louis; Nebraska, A. F. Haarmann of Omaha; New York, A. O. Karp of New York; Ohio, Worth Weller of Oak Harbor; Oregon, Ralph Hahn of Portland; Pennsylvania, A. P. Warthman of Philadelphia; Texas, C. L. Hunter of Houston; Washington, G. E. Porter of Seattle, and Wisconsin, W. E. Riley of Green Bay.

The "future pickle," or the buying of the crop a year in advance, was considered by the body as a "gamble" and a "method whereby the public is made to pay for the gamble."

Arguments For and Against Futures

Speaking on this topic, Mr. Vickers stated that excellent arguments could be used both for and against the future sale of futures.

"My personal attitude," he states, "has changed in the past ten years. During my early connection with the pickle industry, I do not believe that there was anyone as strongly in favor of the sale of futures as I was and I still believe, with the conditions that existed at that time and the fact that the market price of pickles did not fluctuate to any great extent from year to year, that it meant increased business to the packer. However, conditions, as we all know, have materially changed since the World War started and pickles, just as other food items, have shown a greater range of price, which does not tend to make future selling satisfactory either to the buyer or seller.

"There is no question but what, if the market shows a heavy advance, the buyers want from one hundred to one hundred and ten per cent delivery. If the market, on the other hand, declines, seventy-five per cent of the buyers, to put it conservatively, do not give specifications or shipping instructions unless the packer or seller is willing to meet the decline.

"There is no question that the canners generally through-

out the country are limiting the sale of futures, excepting where, for credit reasons, they have to make sales in order to finance their pack. California, which has always been a leader in distributing food products, now only sells futures subject to approval of opening price, which price is not made until they know about what they will be able to pack. Some of our members will say that this is not a sale. In one sense of the word, it is not, though I have been advised by some of the largest jobbers in Chicago, as well as the principal brokers dealing in California products, that this plan works out as satisfactorily and means as many firm sales as when prices were named ahead, as they were in the past.

"It took several years to get this system working right but it is now working where practically ninety per cent of the goods booked on this basis are taken on the opening price proposition and eventually the better known pickle packers, by holding together and working on this basis, can accomplish the same results. This would eliminate the speculative feature as the prices would not be made until pickles had started to come in and a practically accurate estimate of the crop could be secured."

"Pickle Man a Born Optimist"

"The successful pickle man is a natural born optimist," declared C. J. Sutphen before the pickle packers. "If he was not, he would not continue in that line of business. If he has a bad year, he firmly believes that he will have a good season next year. If the cucumber crop is short this season, he says 'I have been through this before, the chances are more than even that we will have a good crop next year,' and so it goes."

"The pickle situation today is greatly improved over that of one year ago. The business of the United States is in better condition fundamentally than it has been at any time since the ending of the war. There was delirious prosperity during the war built on an unsafe foundation; consequently the super-structure has to be torn down and rebuilt. The average business man in many lines made money rapidly and became confused, he did not consider fundamentals, had not been trained to it like the pickle manufacturer. He looks at the symptoms that appear around him, which he interprets in a confused way as evidence that business is slow, in a poor condition and that the waiting or marking time policy is the best one to pursue. This creates apathy which is hard to overcome and further this apathy is contagious. If a man drifts along without any particular aim and imparts his thoughts to his neighbors in the same line of business, the depressing effect will be felt. There is a certain amount of apathy in this organization which must be taken out by strong leadership. If a member does not know in which direction he is traveling, show him the right path."

"To make a success of any kind of business it is necessary to have a plan. One of the leading men in our business and, in my opinion the greatest man we have produced, Mr. H. J. Heinz, the founder of H. J. Heinz Company, had a saying, 'Study the end.' Plan for the future and have an objective point."

Many Views on Pickle Problems

Other principal addresses delivered before the picklers were delivered by F. A. Brown, of Chicago, who talked on "What the Association Is Doing For the Industry;" John A.

Wills, Louisville, on "Freight Problems," and L. A. Hathaway, of Chicago, on "Standards For Pickles."

Dr. Edwin LeFevre, chemist from the Department of Agriculture, Washington, was one of the principal speakers at this session. He discussed "Fermentation and Curing of Pickles." Other speakers included E. S. La France, on "Contracting Acreage;" Dr. Charles Welch of Louisville, on "Impending Economic Reconstruction;" O. W. Caward of Chicago, on "Business Enthusiasm," and Dr. S. P. Doolittle of Madison, Wisconsin.

Great Exhibition of Canning Machinery

What was considered by the convention delegates one of the greatest exhibitions of canning machinery ever assembled was staged at the Jefferson County Armory during the entire week of the conference. This exhibit, costing, it was estimated, more than \$250,000 to ship and put in place, included machines of every description for preparing the raw food product for canning, for placing the food in cans, for closing and sealing the containers when they are filled.

The exhibits covered every activity in the canning industry, and there were approximately 125 food industries represented, coming from all sections of the United States.

Booths exhibiting can and bottle labeling machinery were particularly centers of attraction. The lithographing booth where color printing was displayed, the corn shelling, pea hulling, bean snipping and other modern machinery used in the canning industry proved revelations. Tin, metal, glass, paper and wooden food containers of every description were displayed to great advantage. A full description of some of the important exhibits at this exposition will be found in another part of this issue of The American Food Journal.

Press Men Entertained

Prior to the convention the National Canners' Convention gave a dinner at the Pendennis Club at which representatives of the local press were the guests of honor. Walter J. Sears of Chillicothe, Ohio, past president of the association, and chairman of the association's educational committee, was the speaker of the evening, and in a most interesting and instructive address outlined the difficulties that have been encountered in the industry and the tireless and zealous efforts that have been made through organized co-operation as represented by the association to prepare foods and can them so that they will be not only wholesome and toothsome, but free from impurities and contamination of any kind.

Research Bureau's Work

Mr. Sears stated that the research bureau of the association at Washington is constantly at work in co-operation with America's greatest scientists studying the bacteriological side of the canning industry in the fight to make canned goods pure and wholesome. He outlined the vast amount of work that had been done in this way, at a cost of hundreds of thousands of dollars.

Other features of the convention included an entertainment and theatre party on Tuesday evening, January 17. The American Can Company continued its custom of entertaining visitors Thursday evening, January 20. A special dinner dance was given at the Hotel Seelbach Auditorium Wednesday evening, the Louisville Entertainment Committee acting as the hosts. The Anchor Cap and Closure Corporation gave its twelfth annual "Anchor Night" at the Hotel Washington, January 19, W. P. White presiding.

National Preservers Hold Convention

COINCIDENT with the canning convention, the National Preservers' and Fruit Products Association held its annual convention at the Hotel Seelbach. On the opening day of this convention, B. R. Hart, of the Department of Commerce, who had previously spoken to the canners, addressed the fruit products men on the subject of opportunities for foreign trade in American canned foods and foodstuffs. Arthur Lazarus, cost accountant of the Chamber of Commerce of the United States, spoke on "Advantages of Uniform Cost Systems," and R. U. Delapenha of New York, who

recently returned from an extensive trip to Europe where he studied conditions in jams and jelly manufacture, as well as raw material production, discussed foreign trade, tariff and American valuation.

Mr. Delapenha stated that until protection is given to the preserving industry in this country, it will be seriously affected by the influx of large quantities of British and Australian jams. Mr. Delapenha declared that the American valuation plan was the only plan suggested so far that will give adequate protection to the American manufacturer.

Walter G. Campbell addressed the preservers January 17

on the subject of "Standards, Definitions and Law Enforcement," and N. S. Payne, also of the Bureau of Chemistry, gave an enlightening talk on scientific preserving and research work, as conducted by that governmental agency. This paper will be published in full in a forthcoming issue of The American Food Journal.

Open discussions included: "The Policy of Carrying Stocks on Consignment;" New Sources and Forms of Competition;"

"Unfair, Unethical and Illegal Practices;" and "How to Induce Merchants to Reduce Their Prices to Present Basis of Cost."

Notable among the features of this convention were the dinner and entertainment of members and guests at the Seelbach Hotel, on the evening of January 16, and the luncheon to members and guests, tendered the next day by the Hazel-Atlas Glass Company of Wheeling, W. Va.

New Program to Establish Canning Industry on Firm Basis

PRESIDENT STRASBAUGH in his opening address to the canners stressed the importance of the readjustment membership plan adopted July 15, 1921, and indicated how the new-born organization proposed "to keep a clean house, a clean product and a clean record." He also indicated the advances that had been made in research and investigational work by the association and, urging the whole-hearted cooperation of the brokers and other distributors, gave out a thoroughgoing program calculated to set the canning industry on its feet again.

His address follows in part:

"Under the readjusted plan the National Canners' Association is building upon the foundation of truth. The fundamentals of this plan of organization have been arranged and adopted after conferences lasting over a period of six months prior to their adoption by the board of directors. At these conferences were a number of the leading canners of the United States with plants from the Atlantic to the Pacific and from Canada to the Gulf. With the hope of arriving at a suitable and practical conclusion, numerous suggestions were made, some of which were afterwards discarded. This brought about better suggestions which resulted in the consummation so much to be desired.

"It was evident that the inspection and advertising campaign had attracted the attention of the housewives of this country. The best minds assured those in these conferences that the National Canners' Association had gone on record, that the American consumer would hereafter expect the canners of the United States to furnish them with a safe, healthful, economical product, every can fit for the table, packed in a sanitary factory, with sanitary surroundings and from wholesome and carefully selected raw stock.

Clean House, Clean Products and Clean Record

"It is believed not only by those canners who have favored quality in the past, but also by those who have not, that the time has arrived when the canning industry must produce a satisfactory product, not every once in awhile, but all the time. Even the careless canners are now fully appreciating that the consumer must be pleased if a worth-while volume of business is to be awarded the canning industry in the future.

"The members of the new-born association propose to keep a clean house, a clean product and a clean record. It is realized that this must be done, for if it is to be an association by its members and for its members, and for the consuming public, the present methods of procedure are absolutely essential and necessary. As members of a great national organization, we cannot hope to obtain accessions from the rank and file if we do not set a standard of morals and production which will be the envy of those who have not yet seen the necessity of coming out and making a stand for such methods.

"It is needless to tell you that, since July 15, 1921, wonderful progress has been made toward the readjusted plan of membership in the National Canners' Association. You have already been told that packers of upwards of thirty-three million cases are supporting the readjusted plan of membership and there is every indication that the support will soon reach upwards of fifty to seventy-five million cases of canned foods.

Forced Sale Is Not Productive of Profit

"My observation is the average canner is highly capitalized with optimism but is woefully deficient in cash. Any business is unstable if products generally must be sold below

cost to meet current obligations. Lack of capital brings waste of capital, product and effort. To be most successful, industries must be supplied with ample capital and in a position in seasons of lack of demand to store and carry their product rather than sacrifice to unwilling buyers at a stated time regardless of cost.

"Canners who have been amply capitalized have been fairly successful even during the strenuous years which have just passed. All canners have, of course, suffered more or less on account of deflation, but the extent of sacrifice of product is more noticeable when sufficient capital has not been obtainable.

"Government regulation has been largely responsible for this chaotic condition, but I do not believe it will be able to work the cure. The canner must sell his product to those who can purchase for cash. The canner can ill afford to distribute through those who cannot command ample means for conducting a progressive system of economical distribution.

"Therefore, I again recommend to the canners that they first secure ample capital, not only sufficient for normal years, but to carry them through abnormal years; second, pack quality; third, inform the housewife where to obtain their standardized product of quality.

"During the past year I have observed instances where the spread between the canner's price and the consumer's price has been as great as 250 per cent. I do not feel that any law or regulation will remedy this unfortunate condition. The law of supply and demand coupled with competition will be the only possible relief.

Research Great Help in Consumer Education

"It is evident that the research already conducted by the association has accomplished much. It is essential that this work be continued at least for some time to come. The conviction has been reached that men not directly interested in the canning industry are willing to learn of the findings of the scientific men who conduct research work for the canning industry. Health boards have numerous responsibilities; so also have food officials and physicians. Therefore, it is proper for the industry to inform these agencies of the results of the investigation. It is also the belief of many that the housewife and the consumer will be exceedingly gratified to know how to select satisfactory canned products intelligently.

"Institutional advertising is also proposed so that the housewife may have full knowledge of the canning industry and its delectable products.

The Distributors

"The canner is not a distributor but must sell his products to those who can purchase for cash. The sooner he can obtain cash after his products are packed the lower he can afford to sell them. Carrying charges must be added, otherwise the canner cannot continue to properly function.

"The canner can afford to sell in large quantities at a lower price than in small quantities, and if the canner does not obtain a higher price for less than a carload shipments he is either losing money or absorbing his profit, a thing which cannot last. The canner can ill afford to distribute through those who cannot command ample means for conducting a progressive system of economical distribution.

"Chambers of Horrors" of Canning Industry

"To our broker friends, members of the National Food Brokers' Association, with whom many canners have been

walking through the 'Chamber of Horrors' for the last two or three years, I appeal to them to assist the canner in a work of uplift. Brokers should abet the packing and distributing of high grade products. Trade killers may gain the brokerage today, but such products are as unprofitable to the broker as to the canner. They do not encourage future business—and for this reason increase the cost of maintaining the brokerage business. They lessen demand and discourage repeat orders.

"It is as important for the broker to examine himself and observe if there is not sufficient cause for him to change some of his methods of procedure and business conduct as it is for him to recommend to the canner an improvement of canning methods of production and distribution.

"I am of the opinion that it is important for the broker to assist the canner and distributor in working out a reconstructed plan of distribution.

Reduced Freight Rates

"Our present traffic committee of which Charles G. Summers, Jr., is chairman, is using every effort at this time to see that freight rate classification and commodity rates are more favorable towards canned foods. Present rates are retarding production and consumption. The canning industry will be unable to function normally until freight rates are reduced. A word from the individual canner will greatly aid this committee.

The Farmer and the Canner

"The farmer has suffered from deflation more than any other producer and much more than any industrial corporation. It is almost impossible to discern the dividing line between the farmer and the canner. The farmer produces and the canner conserves.

"According to Government statistics canned products in 1919 amounted to over \$800,000,000; at least from \$200,000,000 to \$250,000,000 was paid that year to the farmer by the canner for raw produce. Considering the wheat crop of 1921 which was worth about one billion dollars, it is readily seen that the canning crop of 1919 represented about one-fourth of the value of the 1921 wheat crop to the farmer.

"This should put the canning industry in the agricultural class. The farmer feels the depression when canned foods are selling below cost and when volume is reduced just as much as does the canner. Bankers in the canning district

where these shrinkages have occurred in this class of husbandry, would verify this statement. It is therefore obvious that any legislation intended to help the woeful condition of agriculture should likewise consider this canning branch of the industry.

Recommendations

"I would recommend during the coming year:

"1. That the association continue its efforts in discouraging intentional canning of inferior products and the production of inferior and off-grades whenever the same can be avoided.

"2. That every effort be made to encourage and assist ample capitalization among canners in keeping with the changing methods of distribution so that business may be thereby better stabilized and violent fluctuations, often productive of bankruptcy, may be avoided.

"3. That every member of the National Canners' Association co-operate with the traffic committee so that it may be furnished with information pertaining to each canner's need.

"4. That our association support and co-operate with the Bureau of Foreign and Domestic Commerce in the newly formed Canned Foods Division so that the duties on canned food exports may be so arranged that the use of this important product will be no longer prohibited on account of import duties exacted by foreign countries.

"5. That the members of the National Canners' Association co-operate with the executive officers in bringing about the use of proper labels, so that misbranding of every kind can be avoided, and every can of food be labeled intelligently so that the consumer may know what to expect from the label. Also that the executive officers of the National Canners' Association be advised by individual canners whenever any case of misbranding comes to their knowledge.

"6. That a closer relationship be encouraged between the farmer and the canner. This closer relationship can best be brought about through developing the work of the bureau of raw products research. The work of this bureau is of the greatest value in developing the information which canners and farmers need in order to improve their production methods, increase their yields, improve the quality and assure the future supply of the kind of raw products which the canning industry must have if it is to grow and prosper as we all wish."

Pickling Investigations During 1920

SPEAKING before the National Pickle Packers' Association on Tuesday, January 27, Edwin Le Fevre of the Department of Agriculture summarized the pickling investigations that had been made during 1921 and stated his conclusions regarding the growth of micro-organisms in brines of varying intensity.

An abstract of his investigations follows:

Investigations concerning the fermentation of brined vegetables were continued during 1921. Among the problems considered were the effect of different salt concentrations on the number and character of the micro-organisms present in the brine, the influence of temperature on these fermenting processes, the results to be derived from the use of pure cultures and from the addition of sugar and the relation of mosaic to the curing of pickles.

Cultural tests have shown that cucumbers and cabbage as they come from the field are heavily seeded with micro-organisms. In the case of cucumbers two methods of fermentation are commonly used. In a weak brine fermentation such as is used in making dill pickles containing, as a rule, less than 5 per cent of salt at the start and this rapidly reduced by dilution, the lacto-bacilli multiply rapidly and the spoilage organisms are but slightly inhibited. In a strong brine fermentation such as is used in curing salt pickles, containing usually about 10 per cent of salt at the start, this amount being gradually increased to about 15 per cent, all types of micro-organisms are greatly inhibited, even the lacto-bacilli decreasing rapidly in numbers after a period of about ten days. Such a brine becomes practically sterile within a few weeks. This explains why spoilage takes place when pickles are held too long in a weak brine while in a strong brine they are preserved indefinitely. The fermenta-

tion of cabbage is carried out in a weak brine formed by its own juice which is rapidly withdrawn by the action of salt. In this case, spoilage is prevented by the greater acidity which is usually sufficient to prevent the growth of spoilage organisms.

The essential factor in all of these brine fermentations is a well-defined group of the lacto-bacillae. This group is widely disseminated in nature and is always present on cucumbers and cabbage. The most favorable media for their growth are the vegetable juices, especially that of cucumbers and cabbage. The most favorable temperature is approximately 30 degrees C. (86 degrees F.). Their fermenting activity, as shown by our experiments, decreases in the same ratio centigrade as the temperature falls below their optimum. This is a matter of great practical importance in the fermentation of both cucumbers and cabbage. It is especially important that the optimum temperature should prevail at the start of a fermentation. In the case of cucumbers the proper temperature can readily be secured by heating the water used in making the initial brine.

The use of pure cultures as starters in the fermentation of brined products have not been shown by our experiments to be of great practical value. These experiments have indicated, however, that the use of cultures of properly selected organisms may be of value in improving the flavor of these products.

Our experiments during the past year have confirmed those of previous years in showing that the addition of a readily fermentable form of sugar to a pickle brine results in a more active fermentation with a higher and more prolonged degree of acidity.

How Food Law Enforcement Helps Canner

Head of Bureau of Chemistry Points Out Valuable Aid to Manufacturers Afforded by Federal Act

By WALTER G. CAMPBELL*

Acting Chief of Bureau of Chemistry, Washington, D. C.

THE Bureau of Chemistry is known to you generally through its service in the enforcement of the Federal Food and Drugs Act. Because my service in the bureau has been co-extensive with the life of the law, I have often been asked wherein current administration and procedure differed from that of a decade ago, and to what could this difference be ascribed.

I do not intend to describe the organization for the enforcement of the law as it exists today or the particulars in which it differs from the organization of earlier days. It is sufficient to say that such changes as have occurred are those normal to any business or governmental organization required to deal with modified conditions and seeking to do so with equal or improved efficiency. What I would have you know, however, is something of the administrative plan by which this organization is controlled: the views common to every bureau executive in certain fundamental policies; the influence which industrial development has in modifying administrative decisions; and finally, the attitude which prevails in law enforcement matters at the present time.

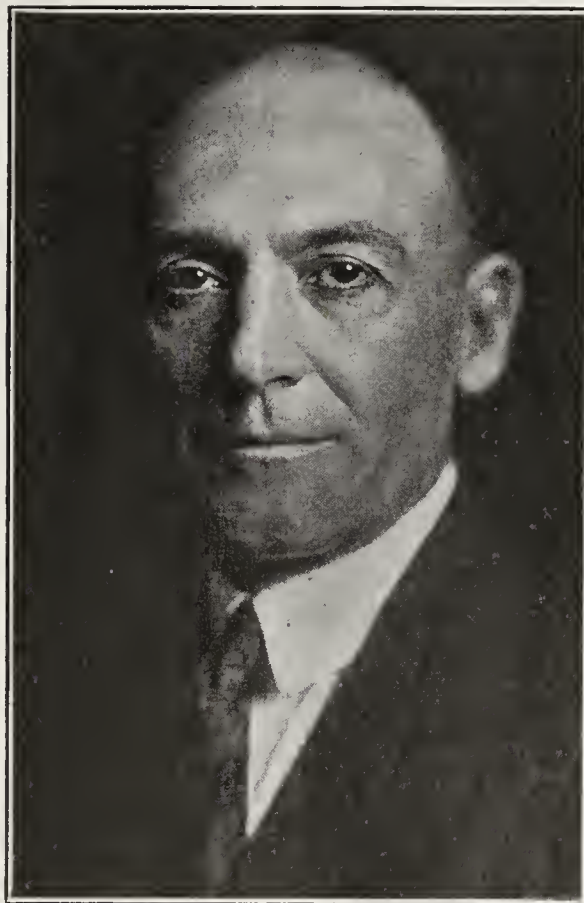
The Bureau of Chemistry is and always has been committed to an improvement in the character of the nation's food supply, honestly produced and honestly sold. How to achieve this goal is the basic question upon which its policy is determined. A course established as one to meet satisfactorily the conditions of more than a decade ago would be wholly insufficient as a present day plan.

At the time the Food and Drugs Act was passed there had not been as a general practice an observance by manufacturers of those requirements which that law imposed. The use without restriction of artificial colors and preservatives; the employment of liberal quantities of water, the cheapest and most prevalent of all adulterants; the lack of any system for selecting raw material with appropriate discrimination; failure to sterilize properly; and neglect of the very fundamentals in matters of sanitation, represent practices which prevailed to a certain degree. These practices were restrained only by that sense of moral obligation and decency entertained by the individual manufacturer.

Courts Have Decided Most of the Controversial Questions

Expressions by the department as to the meaning of vari-

ous phases of the law anticipated judicial opinion and very naturally were accepted in some instances with reservation. This fact and the necessity for employing strenuous means for correction led to litigation. The court decisions which settled such suits have indicated rather definitely the exactions and likewise the limitations of the law.



Walter G. Campbell

With that increase in enlightenment which comes from further interpretation of the act by the courts, there should be a corresponding decrease in vagueness as to the requirements of its provisions. The issue steadily becomes one of fact more than of law. This simplifies the task of the Government—department expressions, whether by correspondence or formal announcement, can be made with greater certainty.

The bureau for some time has recognized the necessity for a thorough revision of the regulations promulgated for the enforcement of the law. These regulations as originally issued by the Secretaries of Treasury, Agriculture and Commerce in compliance with the requirement of the Act have been reconsidered and tentative revisions drafted. It is expected that this work will be completed and new regulations issued at an early date. Immediately thereafter it is the intention of the bureau to undertake a similar revision of its food inspection decisions and service and regulatory announcements. Some of these decisions are obsolete. The trade practices to which they relate no longer exist. In this re-

vision we hope to eliminate conflicting features and so to arrange the final form of issuance that members of our own force and state and city officials not only, but manufacturers and dealers themselves may without difficulty determine definitely and correctly the position of the bureau on any question about which it has published an opinion.

Limitations of the Law

It is recognized that the law is not perfect. It guarantees protection neither to the public nor to legitimate manufacturers against every wrong with which they have to deal or compete. Daily the Bureau of Chemistry receives complaints from outraged customers or appeals from the trade for relief from types of competition in the face of which it is claimed that it is impossible to survive. The bureau has no power to correct some of these faults. It has no authority to add to, or subtract from, the text of the law. Its duty is confined to the enforcement of that measure as Congress passed it, and if its limitations will not permit correction of those matters about which complaint

*An address delivered before the National Canners' Association at its annual convention at Louisville, Ky., January 16-20.

has been made, relief must be sought through amendatory legislation.

In addition to those practices to which I have referred as the cause of frequent complaint and which, on account of the limitations of the law, the bureau is not able to correct, there is another type of manufacturing activity which periodically inspires even more vehement protest but which the bureau likewise cannot control, not because of any deficiency in law, but because, speaking candidly, we have not, for the time being, the means to do so. There are definite limitations to science, at least within the scope of our present knowledge. Methods of analysis have not been developed or have not been carried in their development to that stage of refinement where it is possible now to detect every type of sophistication. Certain forms of adulteration exist because we can not produce the evidence to stop them.

As an illustration, the solution of the problem of protecting the manufacturer of pure cocoa and chocolate from unfair competition with products stretched by the addition of unnecessary amounts of cocoa shell had to await additional data from the scientists who were assigned to a study of the question.

To my knowledge there has not been a single day during the life of this law when the Bureau of Chemistry was not confronted with this condition of affairs, but it has succeeded eventually through a persistent and concentrated command of its resources in overcoming these difficulties, notwithstanding the fact that some of them presented obstacles of huge proportion. No small credit in this achievement is due the legitimate manufacturer who through a spirit of cordial co-operation has assisted us by counsel, by throwing open to us his plant and frequently at his inconvenience and expense permitted us to undertake factory experiments which were essential to the final solution of the question.

While time has solved these temporary problems and will continue to do so, for I have confidence in the ability of our scientific staff and in the desire of the industry to perpetuate a spirit of co-operation, it is recognized that a severe tax is imposed upon the consumer and the manufacturer suffering from such illegal competition in asking them to remain optimistically patient through this period of our preparation for effective action. The bureau appreciates the emphatic need for reducing the frequency of occurrence and the time through which these periods extend. Its program of work has been arranged with the idea of carrying on investigations insofar as practicable in anticipation of these developments in order to obviate the attending trade disturbances. The formulation of a program is one thing; ability to execute it promptly is quite another proposition.

Difficulties in Maintaining Scientific Staff

Satisfactory progress in our efforts requires a competent, experienced scientific staff. The bureau has met untold difficulties in its effort to maintain an adequate force, and these difficulties will not disappear until the funds appropriated and the salaries paid are sufficient to prevent partially that turnover in personnel caused by the lure of more remunerative industrial positions. Notwithstanding this, the attainment of our purpose has in a great measure been realized. More could have been done of a helpful character for the canners of food products had the force and funds been sufficient to have permitted a study of a great number of your problems. Particularly would your benefit from such increased activity have been the greater if it had been possible to apply the results of such studies at once by educational methods on the part of the adequate force of experts prepared to make factory demonstrations.

The constructive technological work of the Bureau of Chemistry is financed from definite appropriations which may be divided roughly into two classes: First, those appropriations which are made for specific lines of investigations such as the development of methods for the manufacture of dyes, of methods for the manufacture of insecticides, of improved processes for preparing and handling rosin and turpentine, of means for preventing dust explosions in threshers, grain mills and elevators, of methods for manufacture of sugar and sirup, for the application of chemistry to agriculture, and the like. Each such appro-

priation can be used only for the specific purpose for which it was made. Second, a general lump fund appropriation for all necessary expenses in the enforcement of the Food and Drugs Act, out of which all work involved in the making of factory inspections, the collection of samples, the analysis of samples, the presentation of evidence in court, and the like, must be paid, as well as such scientific investigations as may be necessary to develop methods of analysis and data regarding the composition and manufacture of foods.

Now these investigations sometimes involve a complete scientific study of methods of manufacture and not infrequently develop information which points the way to improvements that will lower the cost of production, or that may do both. Problems are continually brought to our attention, the solution of which will have a more direct bearing on better and cheaper manufacturing processes than upon the enforcement of the Food and Drugs Act. The efforts of the Bureau of Chemistry to make available to the industry the results of such work are dictated by a desire to combine in its law enforcement service the educational and helpful with corrective action. However, it is felt that in allotting the fund appropriated for the enforcement of the law, further provisions cannot at this time be made for research at the expense of regulatory work.

Results Already Achieved

Neither such imperfections as exist in the Food and Drugs Act, nor the limitations in the means for its enforcement, should detract, or in fact can detract, from the splendid results achieved by the act in its present form. It is regarded as a criminal law. But it is corrective rather than punitive. A statute of protection, designed primarily as regulatory in character, we can, from the results which it has accomplished, proclaim it at once as one of the most constructive pieces of legislation ever enacted. Undoubtedly the industry at first regarded this legislation with some apprehension. This feeling was the forerunner of that protest which manifested itself in our last national campaign in a demand for less government in business.

With all the controlling or restrictive legislation which has been enacted meanwhile from the combined effect of which business may feel itself oppressed, I wonder if the food manufacturers of the country, if they had it in their power summarily to do so, would bring about voluntarily an annulment of the Federal Food and Drugs Act. To do this in my judgment would be a grave mistake when the advantages which you have enjoyed and are continuing to enjoy through the existence of that law are properly appraised. Because of it there have been inaugurated manufacturing reforms of a more constructive and thorough-going character than were contemplated by the authors themselves or by the most friendly and optimistic advocates. It is fair to assume that so long as practices are not illegal they are likely to obtain, if they are practices which have been inherited from those responsible for the direction of business enterprises before our day, and if their discontinuance is not a patent necessity for the increase of dividends. The moment, however, such practices are outlawed the very life of a business enterprise requires an exercise of constructive thought, of ingenuity, of resourcefulness in determining those modifications which are necessary.

Survey briefly in your own minds the changes which have taken place in the decade and little more which encompass the life of the act. There was a time when the manufacture of tomato catsup, for instance, without a preservative was considered a commercial impossibility.

Contrast, as I can, the condition which existed a dozen years ago in a certain portion of the canning trade with the condition of today, as I know it, in the same portion of the trade. The improvements denote a healthy progress. While some of this change may be ascribed to the natural advancement which occurs with the passage of time and to the beneficent, persuasive influence of trade organizations, I am convinced that knowledge of the existence of this law, necessity for a compliance with its provisions, and conviction that it would be enforced energetically, were

factors from which the greatest influence and inspiration in this direction were derived.

How the Food Law Helps the Canner

The Supreme Court has declared that this law was enacted for the protection of the consumer. That is true and its enforcement is with that interpretation steadfastly in mind. But it extends to the manufacturer very definite benefits. It suppresses illegal competition. But to you it is in my judgment a boon for the more important reason that it has created in the minds of the public a confidence in the integrity of your product. How fully this advantage is realized I do not know. Nevertheless it is very real; it does exist. The public believes, and with ample justification, that on the whole the food supplied them today is wholesome, properly prepared and truthfully labeled.

Why shouldn't they believe this when they remember the scandal which attended the procurement of a food supply for our Army at the time of the Spanish-American War, and then by way of refreshing contrast recall our experience in the recent World War, when this country undertook to furnish food; not only for our own army, vastly augmented in number, but to make provision for feeding in part the armies and the populace of the nations associated with us. The purchasing agents of the War Department and the commissions of the allied countries obtained, in quantities scarcely theretofore conceived, supplies of every kind of food from every section of this country; food prepared by factories of varying capacities, operating under varying standards of control and with those possible slight exceptions which fade into insignificance when compared with the gigantic whole, the supply was acceptable in every respect and proclaimed wholesome and fit.

I would not have it inferred that the development of the canning industry or the development of any food manufacturing industry had been to a point where objections no longer exist. We have not, and perhaps never will reach that utopian state. However, the improvement which has occurred within the past few years justifies the forecast that

the most greivous faults, those which are fundamental in their nature, can be and will be eliminated in due time.

Prime Purpose the Improvement of Food Supply

The Bureau of Chemistry, in the enforcement of the Food and Drugs Act, to such extent as that law may be a factor, is more concerned in the achievement of those results which may be responsible for this situation than it is with the creation of a reputation builded upon the number of prosecutions which it has inaugurated and has carried to a successful conclusion. Let me say to you that we are not concerned with the multiplying of prosecutions. We have no interest as such in the increased publication of notices of judgment. We have furthermore no disposition to refute the conclusions that may be drawn from a classification of them in any manner that the whim of a statistician might dictate. As I have said to you, our primary purpose is the improvement of the general food supply of the nation.

I believe that a policy founded upon a determination to control interstate traffic in foods and drugs by resort to the penalties of the law only would not guarantee the best protection to the consumer nor would it be in harmony with the reason or philosophy underlying the enactment of that measure. If our purpose can be accomplished, and we believe that it can, by appeal to the manufacturer to recognize through the exercise of his conscience the obligation which he assumes in his commendable calling of manufacturing food; if there can be impressed upon him through either a sense of duty or through a recognition of the certainty of improved business resulting from the preparation and marketing of wholesome material only, unspoiled and truthfully sold; if prosecutions are instituted swiftly, extensively and vehemently where suggestion and a spirit of honesty and duty have appealed and failed, the bureau believes that it will have pursued a course dictated by the wisdom of experience, having the advantage of being less expensive to the taxpayers of the country, and justified by corrections more expeditiously obtained, than if its exclusive concern were to invoke in an exacting way the penalties of law without thought of reformation.

Co-operation of Trade Factors is Key to Future Prosperity

PAUL E. KROEHLE, retiring president of the National Food Brokers' Association, made a moving appeal for co-operation among all the factors engaged in the canned goods industry. Mr. Kroehle declared that everyone engaged in the canning business should belong to one of the "big three" associations. Non-competing brokerages for individual manufacturers and better standardization of goods were emphasized as important considerations in the re-establishment of the canning industry.

Mr. Kroehle's address was as follows:

"In union there is strength." This is an old adage, but its truth remains. As decades roll by and one generation follows another, new wonders are revealed to us and yet more terrible dangers are also revealed as possible menaces to our comfort and safety. Where an individual may be strong, a group of individuals is admittedly stronger. Where a business may be strong, a group of businesses is undeniably stronger. Where a nation is strong, there has been found need for an alliance of nations and even a world alliance has been suggested. Where individual canners have felt themselves strong, even the strongest have felt the necessity of association with others of their kind, and where an association of a few has been formed, there has been found, the necessity for a greater. Where national associations exist in two industries closely allied, it is but reasonable and obvious that exceedingly close relations should bind them together.

Strong and Powerful Organizations Needed

"An organization cannot be strong and powerful unless it has strong and powerful support. You who are here unquestionably believe in the value of association, but your presence at this convention does not suffice. If greater power be desired, then a greater membership must be obtained. A few men may necessarily actually conduct your association affairs, but every individual must do his part

making himself of value by endeavoring to induce every person in a similar business to become a member. Every canner in this country should belong to the National Canners' Association, so that the service of that body may prove so tremendous that no canner could afford to be outside of its ranks. There is no reason why every broker in this country who is self-respecting should not belong to the National Food Brokers' Association. A good broker should demand admission, but every member should constitute of himself a committee of one to persuade every non-member to become a member. The same identical idea is equally important to each member of our three allied associations. Let us make them complete. Let each one of us do our utmost to this end. Let us not forget it or put it aside. Let us resolve right now to secure at least one new member.

Single Brokerages for Individual Firms

"Certain canners have considered it necessary, and expedient, and wise, to permit their offerings in a given market to be made to the trade by different brokers. To me it seems obvious that such canners provide for themselves competition against themselves. Most sincerely and earnestly do I urge for your consideration a close scrutiny of this phase of your business. The buyers of your products are sufficiently harassed by details and troubles of their own, without having two, three or four different brokers absorb their valuable time by making the same offering. The buyer is placed in a very embarrassing position by reason of his desire not to favor one more than another, and is very likely to throw his business to an entirely different source of supply.

"Frequently, a complaint is made that a broker does nothing but try to beat down the market. In an effort to secure the business, one of your representatives may be tempted to depart from the ethical standards recognized as

positively essential for the proper conduct of the business and for its continuance. This, in my humble opinion, operates against the idea of doing everything in one's power to establish and maintain a smooth-working machine. Everything should be done to reduce the possibility of any occurrence on the part of any individual, be he buyer, broker or canner, involving any possible temptation, the general practice of which, or the furtherance of which practice, will mean the eventual ruin of the industry.

"When various canneries combine, frequently various brokers are maintained. If a combination were to establish an office of its own, would it establish four different offices in one market? Why, then, have four different offices in the form of broker representatives? Instead of pulling down your broker, why not build him up. He performs a function which cannot possibly be otherwise equally economical and efficient. If you yourself hope to be a tremendous power, why not also hope that your representative may be an equal power in his market. Why not, then, choose your representative and together work in harmonious, sympathetic, honest, co-operation? The same idea of union again prevails. According to statistics, there is one broker in the country for every canner and for every wholesale distributor. You do not all need the same broker. There are plenty of them. Choose your broker. Work unreservedly and loyally with him, and if results indicate a wrong choice, the privilege is yours to change.

"A cause of frequent trouble is careless or ignorant grading of foods, thereby making and causing unfair competition. Standardize your gradings—grade your pack honestly and intelligently—avoid frequent misrepresentation by brokers and sales agents. Let the term 'standard' mean something. Maintain your standards and call by its proper name that which does not grade up. If a canner calls a sub-standard a standard, then do not criticize the broker who accepts his principal's grading. This difficulty so recently frequent in corn, requires and demands your united attention. Let canners, brokers and buyers honestly and earnestly fight this common cause of unnecessary financial loss—and join forces to solve this serious problem.

"The year of 1921 has been a year of heartaches for the great majority of us in the business of food. The year of 1922 offers much of promise, but it must remain quite obvious to you all that the clouds will not roll by and reveal a beautiful blue sky for many more months, and perhaps years, unless every possible atom of your strength, limit of your brain, vestige of your vitality be applied, and brought into action. We are in a battle against failure. We must fight for success. I earnestly plead for a greater unity of purpose, for more mutual interest in our affairs, for a complete divorce from our hearts and minds of suspicion and unfriendliness and for a determination to conduct our business along ethical lines. A light heart and a happy mind, made possible by the friendship and confidence of all those with whom one does business, makes life supremely worth while."

Foreign Trade Outlook For Canned Goods Encouraging

IN a report to the canners' association, C. H. Bentley of San Francisco, Calif., chairman of the foreign trade committee of that organization, stated that the foundations for great export trade development had been successfully laid during the past year, despite the reduced buying power of the foreign countries and unfavorable conditions generally. Mr. Bentley commented on the work that had been done in conjunction with the Senate finance committee on the tariff and indicated how the amendment proposed by the canners to section 302 of the pending document would accrue to the advantage of the American canning industry.

Mr. Bentley's report follows:

"In view of the reduced buying power of the people in most foreign countries, and in view of the unfavorable conditions of exchange, it is but natural that exports of canned foods from this country should have fallen off materially, as they have done during the past year, but your committee has been active in meeting specific problems which have arisen and has also continued earlier efforts in the laying of foundations for a larger development of trade when conditions become normal.

"Among the more important specific problems were difficulties arising in Canada in the interpretation of tax regulations which led to a double taxation on canned foods and other products going from this country. Your committee was active in securing the attention of the proper agencies of our own Government and that of Canada, and was helpful in having this difficulty removed.

Discriminatory Duties

"Discriminatory duties in France, against Hawaiian pineapple, have been removed. An effort is now being made to secure reconsideration of the present regulations which lay a discriminatory duty against canned salmon coming from this country as compared with the duties laid upon canned salmon coming from other countries.

Urge Amendment to Tariff Bill

"One of the principal activities of the committee during the year past has been in connection with the pending tariff bill. The various branches of the industry were represented at the hearings of the ways and means committee held in January, 1920, and extending into February. Each of them presented its peculiar problems, and, in a general way, it was stated that protective duties were sought, not merely to offset the cheaper cost of production in various foreign countries which sought to export canned foods to this country, but rather as the means of establishing a trad-

ing basis so that we might have something to trade with in negotiating reduced tariffs in many foreign countries. On behalf of the canning industry, various briefs were filed, and, among other things, trading clauses were sought in the pending tariff bill. We are particularly interested in section 303 of the special provisions which authorizes the president to reduce tariffs 20 per cent in consideration of similar reductions secured from other foreign countries. Section 302 of the special provisions makes it the power and the duty of the president to raise tariffs in this country on goods coming from a foreign country when such foreign country levies a higher tariff on like or similar products.

"For fear that the Treasury Department might interpret this expression like or similar products too narrowly, after very careful investigation with various departments of the Government we have asked the Senate finance committee to secure an amendment of this expression to read 'products of similar character, or purpose, or use,' the point being that for example the canning industry knows of no particular reason why France should be able to export canned sardines and canned peas to this country on a lower rate of duty than France exacts on canned vegetables or canned fish shipped from this country to France? It is believed that this provision would be very helpful to the industry because it would not require ratification by Congress and would be automatically applied on suitable representation of the facts being made from the industry or from other sources. If the bill is finally passed with this provision, we regard it as one of the most constructive pieces of tariff legislation that has been undertaken in the history of this country so far as the development of foreign trade is concerned. Ordinary reciprocity treaties are always open to criticism because the general impression is that one industry has to be sacrificed to please another, but in this case the matter would be held within given industries, and it is significant that this clause could be brought into play in connection with goods from Norway, Belgium, Holland, France, Spain, Portugal, Italy, Japan, Australia, Mexico, Canada and other countries.

"Another provision in the tariff bill clears up an inadequate provision with respect to countervailing duties, and hereafter subsidized goods entering this country can be met with an increased duty to offset the bounty or subsidy granted by the foreign governments, provided section 306 of the special provisions of the pending tariff bill be passed."

Scientific Research in the Canning Industry

Need of Investigational Work Required to Overcome Prejudices in Public Mind Due to Poisoning

By C. H. BENTLEY*

President California Packing Corporation

THE expression "ptomaine poisoning" covers a multitude of sins, for many doctors and diagnosticians have found it a convenient way to cover their ignorance, while the newspaper reporter and headliners have found it a startling and alarming phrase to catch the eye. The expression is still used, and, for the most part, inadvisedly, but we hear comparatively little of ptomaine poisoning nowadays because of Dr. Rosenau's report on this subject. It behooves us, therefore, not to be content with this splendid achievement in our national work, for it is obvious that our organization should be progressive, seeking new fields, to clear away prejudice and obstructions, cultivate the fields and harvest the good results for the benefit not only of our industry but for the consumers in general.

Research work for the benefit of the canned food industry should undertake at least two things—first, the improvement of our products in every way possible, and, second, the removal of the prejudice which exists in the minds of so many people against anything canned.

Not Solely a California Problem

It is with considerable reluctance that I come to address you on this subject because there seems to be a feeling among many canners that this is a California problem and for that reason it might give a more correct impression if other members of our research committee should appear before you at this time. In spite of the fact that cases of botulism have arisen in connection with canned food products, particularly home canned products, from Atlantic states and from states in the Middle West, it is perfectly natural that the average canner should feel that California is more particularly concerned because of the greater publicity which has attached to the few notable cases in connection with California ripe olives.

It is also perfectly natural for canners of vegetables and animal products which have not been featured in any of these cases, to believe that they are not concerned, but a very superficial investigation of the facts will convince the intelligent person that this is a problem of vital importance to every producer of canned foods. It is true that by far the larger number of cases has come from home canned products, in spite of the fact that the quantity produced in this way is in very small proportion to the enormous quantities produced commercially. Nevertheless,

these troubles are at the foundation of the prejudice which limits the consumption and distribution and, therefore, limits the production of canned foods, and any canner who fails to give this matter his most serious consideration is going through the ostrich performance of hiding his head in the sand.



C. H. Bentley

Investigation at Stanford University

It is natural, too, that California should be closely identified with this investigation because it so happened that in November, 1913, an outbreak of botulism occurred at Stanford University in California. The Stanford University medical department took immediate charge of the investigation and came to the conclusion that the difficulty had come from home-packed string beans which they had served as a salad, and at that time began a most thoroughgoing and intelligent investigation under the auspices of Stanford University conducted continuously by Dr. Ernest C. Dickson. His work was early recognized in scientific circles and in the medical profession with the result that in every case of food poisoning in the Western states information was submitted to him for his consideration, and troubles which may have been botulism in other states and diagnosed as ptomaine poisoning were earlier recognized in the Pacific Coast states as botulism.

Something over two years ago there was an outbreak of botulism supposed to have come from eating ripe olives in a certain Middle West state. A few weeks later there was another outbreak of botulism from the same pack of olives, and in still another state another outbreak followed. The case last mentioned occurred in Montana. The Board of Health of that state investigated the articles of food that had been eaten at the meal where the trouble was supposed to have arisen with the result that very article of canned food that had been eaten at that meal was quarantined in the town where the supplies eaten at this meal had been purchased and a state quarantine was contemplated not merely as applying to ripe olives but as applying to canned corn, peas, fish and milk, for it so happened that nearly every article of food eaten at the meal had been in the nature of canned food. One of the largest and most reputable wholesale grocery houses in the country was concerned in this matter because some of the olives in question had been stuffed with pimentos and repacked. The wholesale grocer in question was located in a state in the Middle West from which point his products were distributed practically all over the country.

* An address delivered before the National Canners' Association at its annual convention at Louisville, Ky., January 16-20.

You can readily understand, therefore, how prejudicial to the industry it would be if everything there was an alleged case of botulism the respective state boards of health would quarantine all the canned foods eaten at several meals prior to the outbreak, and it should be borne in mind that the symptoms of botulism are similar to the symptoms of other maladies. It naturally follows that every canner and every wholesale and retail grocer is deeply concerned in this problem.

Botulism Caused by Home-Canned Vegetables

While all the cases reported up to that time, so far as commercial canned foods are concerned, were presumably caused by ripe olives, nevertheless there had been cases of botulism caused by eating home-canned vegetables, and while at first thought it might have seemed advisable for canners to drop the canning of olives and confine their attention to articles that had not yet been affected, the research work that had been done pointed strongly to the fact that other articles might become affected, so instead of taking the narrow view and letting the olives stand the entire burden of this trouble, the directors of the National Canners Association agreed to farther the investigation and raise a funds for that purpose.

Following the experience of the research committee with Dr. Rosenau in his investigation of ptomaines, your research committee secured a continuance of Dr. Rosenau's interest through the Harvard Medical Institute and he, in connection with Dr. Dickson, of Stanford University, and Dr. Meyer of the University of California, with their assistants and their laboratories, have been carrying on thorough-going, scientific investigations. Dr. Dickson had already made quite extensive reports of his research work. Dr. Meyer of the University of California undertook to direct work for the Hooper Research Laboratories. At the suggestion of these two gentlemen, and with the assistance of the governor of California and the presidents of the two Universities, the industry was fortunate in securing the services of Dr. Geiger of the Public Health Service who has conducted all of the field work in this investigation. Drs. Dickson, Meyer and Geiger have just made a very extensive report to the U. S. Surgeon General, and it is expected that this report will be published in a scientific journal after which canners will be in a position to use this information and any part of the report.

We are informed that Dr. Rosenau will complete his report by September of this year, and that Drs. Meyer, Dickson and Geiger will complete their combination report sometime during the coming summer. It is important, of course, that this report should be published in scientific journals in order to have the proper authority and influence with the medical profession. As there is not much literature on this subject and what there is is largely resulting from meat or sausage poisoning, physicians can hardly be blamed for jumping to hasty conclusions. Most of them now know the symptoms of botulism; most of them know that it is caused by *bacillus botulinus*; that this organism is anaerobic, i. e., that it does not thrive in the presence of oxygen, and that, therefore, the hermetically sealed can is a favorable location for its growth.

Ripe Olives in Glass Caused Fatalities

Most of the cases of botulism which caused so much notoriety so far as commercially canned foods are concerned, were caused by one little batch of olives put up in glass. If all the fatalities were put together and compared with the aggregate pack, the chances of poisoning from eating olives are so remote that the average person would think it hardly worth considering.

For over twenty years olives have been regarded as a pickle which would keep perfectly well in brine even without the application of heat or other methods of sterilization, but of a sudden and out of a clear sky come these few but horrible cases. They have been featured in the headlines and have made ripe olives a by-word on the vaudeville stage. The immediate and direct result has been the prostration of the olive industry in California, not merely for the canners but for the growers and producers of olives. Public confidence is being restored but slowly, and when one thinks what wide-spread disaster would follow similar experience in

connection with some of the staple lines of vegetables which are packed in enormous quantities, one can realize the disaster and the serious effect upon the producers and canners, wholesale and retail grocers of the country. We must not overlook the fact that there have been alleged cases of botulism occurring from eating other commercially canned vegetables, and in Eastern states, as well as in the West, and the laboratories inform us that it is really easier to inoculate some other vegetables than it is to inoculate ripe olives.

Says Prejudice Must be Removed

Some have had the feeling from past experience that the outbreak of botulism are so rare that they are hardly worth considering and the industry might lie back and let the thing run its course, ultimately getting by with the same proportion of business that it has been enjoying in the past, but the prejudice in the minds of so many people is so strong against canned foods that for the good of the industry it would seem to be the heaviest responsibility and the most important function of the National Canners Association to take hold of this problem to solve all of the problems in relation to botulism insofar as it affects canned foods, and to take up every form of food poisoning that is likely to affect our products. The lack of information regarding the principles of the diet is appalling, and the general causes of food poisoning from so-called fresh animal and vegetable foods are hardly understood. The canning industry is usually blamed for all such unknown conditions, so it would seem to be for our interest to see that all kinds of food poisoning are investigated, whether they relate directly to canned foods or not, and that in the Public Health Service our Government has a heavy responsibility to see that work of this kind is amply financed and supported.

As a direct result of the investigation which has been conducted under the auspices of the National Canners Association, the California State Board of Health has sent rules and regulations in relation to the processing of certain articles, particularly ripe olives and spinach, and has indicated to the canners that unless they are processed in accordance with some of the findings which have been made by the research committee, the products will not be regarded as suitable for human consumption. The short of the matter is that they are requiring sterilization at certain temperatures and for certain periods which will insure the safety of the products. The toxic material is neutralized at a lower temperature than the micro-organism itself, but as a result of these investigations the thermal death point has been established at which temperature these micro-organisms are destroyed. It is probably too much to expect that when this report is completed that all troubles from *B. botulinus* may be solved, but we are satisfied that if the conclusions regarding the thermal death point when finally reached by these scientists are faithfully observed there will be no further trouble so far as canned foods are concerned.

So we may congratulate ourselves on the good work that the National Canners Association has done for the industry in the past and surely there can be no work more important for the National Canners Association to carry on in the future.

The new program contemplates the handling of any advertising, not through the national organization, but through the various sections or units in the organization. If, for example, the milk section or the tomato section or any other section desires to advertise, it can profit by the experience of the national organization in its recent campaign.

Not to Discontinue Inspection System

The inspection system is not to be discontinued entirely, but there will be no effort to pass upon the quality nor the entire pack of any individual canner. The inspection will be along preventative lines, by detecting the careless packers who are operating under wrong method or under insanitary conditions, trying to bring them to proper standards through moral suasion or through the efforts of the state boards of health or the boards of food and drug inspection.

But the feeling of the committee is that the research work is the fundamental thing. We must put our house in order

so as to remove any prejudice, whether the prejudice is ill-founded or not. Accordingly, the new program will take up this research work in the expectation that we will have our canned foods certainly as good or better quality than the freshly cooked article, and then by the scientific investigation of all forms of food poisoning and the proper distribution of this knowledge, to educate the medical fraternity, the municipal, state and federal food officials, and finally the public generally, that canned foods are the safest foods to eat. When this is accomplished, it is safe to assume that we shall not be able to supply the demand even if we double the capacity of our present plants. It is needless to say that the problem cannot be solved immediately. The prejudice is of long standing and will take a long time to remove it. It will not do for any canner to evade this issue by saying that he has never had any trouble and that his products have never been called into question. There have been several cases of dramatic and tragic justice which have fallen on individual canners of that type who have taken that same position, and they are now the ones chiefly concerned.

Self-Financing Need of Future Says Machinery Manufacturer

EMPHASIZING the necessity of self-financing for such business as canning, Ogden S. Sells, retiring president of the Canning Machinery and Supplies Association, in his address before the canners' convention, stated that all industries in the future must arrange to own or control a larger part of their working capital than ever before in order to assume the function of merchandize banking readily and carry their production from the day of manufacture to the day of distribution.

Mr. Sells' address follows in part:

"We have passed through some dark days together, but I feel the sun is now peeping out from behind the clouds again. I am confident this great basic industry is securely building to new heights on the firm and sturdy foundation you have laid for it by your unselfish devotion to your association duties, even though at times those duties have caused each one of you a very material sacrifice of your own time and money.

"What of 1922? What will it bring? A year ago many felt the storm would soon be over—the world's shelves being bare of goods, a demand that called for years of peak production must exist. But we now see how futile was this belief, for two impassible barriers stood in its path. One, we cannot eat cake and have it. Our total income was being spent to pay for the daily cost of our daily bread and to pay for the wars of the days that had gone before. Second, the tremendous expansion of all industries; the replacing of human with mechanical labor due to the shortage of human labor as a direct result of the war, made possible a production each year that could not be used in 12 months, if used domestically. We know that this last is absolutely true of our own industry and it is true of all industries, when the consumption of only the home market is considered.

"With the financial condition of most of the world all out of focus, the free exchange of commodities, so necessary to absorb the surplus production of manufacturing countries and retain their labor in complete employment at high wages, was proven to be impossible. How long it will continue to be impossible no one knows, but it will require the best brains, the best thought and absolute unselfishness, if these problems are to be solved, and the world put back on a firm financial footing.

All Essential Industries Handicapped

"Not only the canning industry, but all industries that provide the daily necessities for the consumer: food, clothing, fuel, furniture and many others now find themselves handicapped financially in a way they never expected. Under the former conditions of merchandising, these industries were able to depend on and realize a rapid turnover of their capital shortly after the season of flush production, either through the making of future sales or through definite or-

The fruit canners might not have felt especially concerned in this matter because the micro-organism does not thrive in acid mediums and so far as is known, there never have been any cases, at least in commercially canned fruits. Nevertheless, the fruit canners of California realize the prejudice which has arisen against canned foods in general and are carrying a full share of this burden. In fact, up to the present time, they have carried more than their share.

So the appeal is made to you that every canner should help to solve this trouble, because it affects his product indirectly if not directly, and while it may be true that no article he is putting into the cans at the present time has caused botulism or any other form of food poisoning, he need not rest secure, for he does not know what day something of that kind may occur. On the principle that "an ounce of prevention is worth a pound of cure," let us put our shoulders to the wheel on this research work and bring the knowledge to the public that canned foods are not only the safest foods to eat but the best foods to eat.

ders placed a long time in advance. By owning their plants and a small percentage of their working capital, they found it easy to borrow the balance actually necessary to finance production through the medium of short-time borrowing, which they could depend on repaying in 60 to 90 days.

"But they now find that the wholesalers and the retailers who acted both as distributors and as merchandise bankers, taking in their product at the flush season and storing or banking it until the day of ultimate distribution, are now disposed to operate on small stocks and turn them rapidly. These men feel that they do not want to take a chance of being caught with a heavy load of merchandise on a declining market. I know that many people feel that this is but a temporary condition which will pass as soon as the distributors recover from the losses they have sustained, but if the economists are correct, then we are in for a period of declining values which may last from 15 to 20 years, and as good merchants, these men are not warranted in assuming speculative burdens at this time which they were able to assume in the past.

Industries Should Own Larger Working Capital

"If this belief is correct, then all industries must at once arrange to own or control in the future a larger part of their working capital than ever before, so as to be in a position to assume this function of merchandise banking and carry their production from the day of manufacture practically to the day of distribution, so as not to be embarrassed by being compelled through the necessity of reducing loans to force their products on an unwilling market at a loss. And if values are to decline, as the economists assure us will be the case, with each minor step finding values lower than before, then in addition to financing your production you must balance it closely with consumption, so that you, too, can avoid the losses of carrying over merchandise and seeing it shrink in value.

"We have heard many times that the canning industry is in its infancy and the possibilities which lay before it are giants compared to its achievements of the past. Unquestionably, this is so, for all food industries are basic industries, and as such, must grow to the end of time. Whether the growth of the canning industry is rapid or slow depends largely on you men and how you shape your future business policy.

"The consumer of today is taking entirely different views of the value of their money, than the consumer of yesterday. Yesterday, in the consumers mind it was not a question of price nor quality nor even of values; it was merely a tremendous demand 'when can you deliver;' a demand inspired by the wages being paid—combined with an hysterical relief that war was over. But today, in many cases, wages are reduced even 50 per cent, many workers have been out of employment for a considerable period and the

demand is no longer for delivery, but for honest value at a price the worker can afford to pay.

Wages and Buying Power Reduced

"You may say these things do not effect the canning industry directly, for most of our products are consumed within the borders of our own country. True, but what of the steel maker who is your consumer? He is in competition with the steel makers of England, France and Germany. What of the weaver, also your consumer? They compete with the world and yet eat your food. These men and nearly all workers must in their own production meet competition in every market of the world save our own, on an equal footing, and to meet it, their wages are reduced and their buying power reduced. So keep them in your mind that you have a mighty host indirectly that can reduce consumption tremendously.

"It is up to you men to make certain in 1922 that you are producing at the lowest possible cost consistent with good quality; that your overhead expenses are reduced as much

as possible and that your goods are being marketed as near to your place of production as possible, to give the consumer the advantage of the lowest freight rates.

"After you have accomplished all of these important things, do not think that the consumers are going to rush to your market; they are not. They will be urged to buy every other type of food known to men; urged repeatedly through clever advertising and tremendous sales efforts, because all industries are bending every energy to bring about a return of prosperity and are making every possible effort to drive their goods home to the consumer. This industry must awaken to a new era of salesmanship if it is to compete successfully with other industries. There must be born a universal salesmanship never known here before—a salesmanship where not only the man who produces proclaims the values and virtues of his foods, but where each can, must, in itself, be a silent salesman; so winning in its appeal when opened that it will cause the user to buy and open more cans. When this has been accomplished, then the consumer's heart will be truly wed to canned foods."

Woodbury Urges Seed Registration Act

ADDRESSING at different times the tomato and the wax and green bean section of the National Canners' Association convention at Louisville, Director C. G. Woodbury of the bureau of raw products research of that association, made a strong plea for better seed qualities in the growing of the raw product used for canning purposes and emphasized the necessity for full co-operation on the part of the canners with those seedsmen who are producing quality goods. Mr. Woodbury strongly urged the enactment of a federal seed registration act enabling seedsmen who have quality seed to register their stock and giving the buyer assurance he now lacks.

A composite statement of Mr. Woodbury's position both with regard to the bean and tomato situation follows:

Fundamentals of the Industry

"There are two fundamental facts or conditions underlying the packing of green and wax beans. These are identical with the conditions underlying the packing of various other products, such as peas, corn, tomatoes and beets. These conditions may be stated as follows: first, we have an industry producing an important food product, a canned product, which at its best enables the housewife to put on her table a delicious natural food, fresher in the strict sense, more palatable, less handled, and cleaner than is available in most cities from the market gardener; second, the industry faces the problem of increasing consumer demand for its product.

"In connection with this problem, there is general agreement among bean canners that the one essential requisite to develop a steadily increasing demand is that the product offered to the consumer shall always be at its best,—tender, crisp, and stringless. In other words, we are in the business of packing beans, and we are interested in a better raw product because we can pack a better finished product if we have it; and if we do not have a uniformly better raw product, we cannot achieve that standard of excellence in the finished product upon which the sound growth of our business depends.

Stringlessness of Prime Importance

"One of the questions recently addressed to bean canners was this: 'What, from your experience, do you consider the most important improvements needed in varieties, seed strains and growing methods to give a better quality product?' The replies to this question reveal a practically unanimous conviction that stringlessness is the one item of prime importance.

"How may improvement in respect to stringlessness desired by every canner be brought about? I cannot do better than to refer to the statement of another veteran seed grower, a specialist, who is entitled to speak with authority on any subject relating to beans. He says: 'If canners could realize the importance of using no seed except that which is kept pure and true there need be no trouble of this sort,

but very few canners realize that it costs the grower considerable money to handle these crops in such a way as to avoid any possibility of mixture. This means that the grower must get more money for pure stock than the canner would have to pay for stock that is not grown with the same care, but which has become mixed with stringy varieties until it is wholly unfit for his use, especially if he is to take advantage of the new mechanical bean snippers which promise to add so much to the efficiency of snap bean canning machinery. It is unfortunately impossible for any originator of a new variety to hold control of the new type after he makes his first delivery of seed to a customer, and until we are able to devise some plan whereby we can secure the co-operation of canners who are willing to pay a reasonable price for reliable seed we may not offer our new bean to the public.'

Paying For Stringlessness

"Does not this suggest an answer as to how improvement may be brought about in the stringlessness of the seed stocks offered to the canner? We can get it by paying for it. I hold no brief for the seed trade. There are many practices tolerated in it which are pernicious, but there are men in the seed business, just as there are in our own industry, who wish to produce the highest quality which skill and science make possible. If we do not recognize the efforts of such men, how can we expect such efforts to be continued? Seed quality cannot often be determined by looking at the outside of the seed any more than quality of a can of beans can be determined by looking at the outside of the can. The buyer can cut the can, but the seed has to be grown before its quality is revealed.

"The answer to this whole question is contained in the report of the National Canners' Association legislative committee, in the proposed law for permissive federal registration of seed stocks. This law, if enacted, would enable the seedsman who has quality seed to register his stock, and it would give the buyer the assurance he now lacks, namely, that the quality alleged to be in the seed is actually there.

"The way to improvement in bean seed may be summarized very briefly: demand good seed; show the seedsman who is capable of producing it that there is a market for it; be willing to pay what good seed costs; secure the enactment of the federal seed registration act that you may have the assurance of a disinterested third party, the government, that when you pay for quality you are getting what you pay for.

Improvement in Production Cure for Tomato Industry

"Probably all who are interested in tomatoes as a canning crop would agree that the tomato industry has been sick. There are encouraging signs of convalescence, but it is difficult to see how health can be completely restored to this industry until more intelligent and scientific crop pro-

duction methods are developed and put more generally into practice.

"One of the gravest symptoms shown by the patient in this illness seems to be lack of consumer demand. With improvement in production consumer demand will increase, economy will be effected in plant operation, and efficiency of merchandising will be promoted.

"The best informed canners seem agreed that consumption will grow steadily as the quality of the finished product offered the consumer improves and reaches a uniform level of the highest excellence. It is certainly true that the quality of the finished product depends upon the quality of the raw product, and is no better than the quality of raw product permits it to be. In the growers' fields high quality and high yield are almost invariably associated. Given the right type of tomato, quality and yield are almost as closely related as Siamese twins. A direct connection, therefore, may be seen between improvement in production and increase in consumer demand.

The Seed, Soil and Plant Must All Receive Attention

"Where shall we begin in the effort to formulate an improvement schedule for tomatoes? It makes little difference as to what item comes first:—seed and what is back of it, soil and what is in it, plant and how it is produced and grown.

"Obviously the most important element of quality in tomato seed for the canner is, first, that the seed shall be of a type or strain or variety which is adapted to the purpose for which it is to be used. This means, as to constitution of plant, vigor, tendency to heavy yield, reasonably early maturity and adaptation to the soil and climate of the region where it is to be grown. It means, as to fruit, the right kind of red color, evenness in color and ripening, as little tendency as possible to end rot, cracking, green stem, and cat face; the first should be smooth, and spherical or nearly spherical in shape. The flesh must be reasonably firm and meaty.

"There is much we do not know about the internal properties of raw tomatoes and their relation to canning quality, and to pulp and ketchup quality: the relation of sugars and acids to quality—how they may be influenced quantitatively by breeding and selection, and the relative importance of weather and soil on the one hand and plant heredity on the other hand, in determining their quantity and relation to each other; the elusive question of pectin content—these are problems upon which we need the combined research of the plant breeder and the physiological chemist before we can arrive at the proper understanding of the tomato.

"For the present, if we can get seed which has been produced from high yielding parents, true and uniform in type, free from seed borne diseases, and which will produce a uniform, smooth, solid, red, spherical or nearly spherical fruit, we may await the result of additional research for further improvement. Many of us are not getting such seed now. A great improvement in the industry would be effected if there were a supply of such seed available to every canner—and if he would avail himself of that supply!

"Give the Plant a Chance"

"Good seed is the basis and is indispensable if improvement is to be effected. With good seed to start with, provide good soil well cultivated, set properly grown plants, 'give the seed a chance,' and we will soon realize that twenty ton yields are normal, and that with sound agricultural practice in growing it, the tomato is one of the most profitable of farm crops. With such yields from good seed the rule instead of the exception, we will have tomatoes which make the kind of finished product which will pack the most cans per ton, thus promoting factory economy and reducing overhead—a finished product which can be merchandised efficiently because every can creates good will—a finished product which can be produced at a profit by the farmer, manufactured at a profit by the canner, and sold in increasing volume to meet a constantly growing consumer demand."

Big Exports of Cereals, Pork and Condensed Milk During 1921

THE very high exports of wheat, corn, rice, pork products and condensed milk were the outstanding features of our 1921 foreign trade in foodstuffs, according to an analysis of the year's business made by the Foodstuffs Division of the Department of Commerce.

Exports of wheat flour (calculated as wheat) amounted to a total of 75,602,048 bushels, which exceeds any year during the war and is about the average of pre-war exports. The wheat exports reached a maximum in the month of August and have shown a steady decline since, due in part to the large wheat crop harvested in Europe this year and also to the incoming of the Canadian crop. Both Australia and Argentina have produced a good crop, which is now beginning to reach the European market and will be in full volume by the first of March.

Exports of corn amounted to 132,000,000 bushels, which is about three times the pre-war exports and six times the exports for 1920. This large movement of corn was due to several causes, amongst which is the effort of European countries to increase pork production, corn being a comparatively cheap food for this purpose. The European drought, which has increased somewhat the general demand for imported grain feeds, had affected in part the barley crop, making necessary the importation of considerable corn for growing and malting purposes. Also, while in 1921 a large amount of corn was sold to Europe and Argentina, the trade has shifted to a large degree to the United States, during the past year, due, no doubt, to the policy of American exporters to finance the trade.

The large trade in American rice during the year was due, in part, to the short crop in India last year and to a lower price on American rice during the latter part of the year making it a relatively cheap food product. The exportation of barley also improved as a result of the European drought.

The continued rather heavy exportation of pork products, although not as large as last year, is still well above pre-war exports. Exports for the year reached a very high level during the months of July, August and September and declined to November, have shown a substantial increase for the month of December. While the general trend of all grains and grain products is still downward, meat products have taken a decided up-turn during the month of December, but the bulk of the up-turn was due principally to the exports of lard.

A Correction

In the January issue of The American Food Journal there appears in connection with an article entitled "Dehydration of Pears in the Northwest," by Ernest H. Wiegand and Ray Powers, a boxed statement attributed to Professor Wiegand. Owing to a printer's error, the name of Mr. Powers of the Bureau of Chemistry was omitted from this quotation. The statement should have been attributed to both Mr. Powers and Professor Wiegand, inasmuch as it was prepared as a joint contribution.

Owing to the unusually large number of special articles in this issue of The American Food Journal, it has been deemed necessary to omit the Questions and Answers Department. This omission is a temporary one, it should be understood. The department will be resumed in the March issue as one of the regular features of this publication.

Retailers Co-operating With Cannery

Will Assist Industry by Nationwide Support of Canned Goods Week, Lower Prices and Better Methods

By H. C. BALSIGER*

Secretary National Association of Retail Grocers

WHEN I look back to my very first introduction to canned goods—as a barefoot, inquisitive boy in the late eighties in a country town in central Kansas—my recollection sees upon that grocer's shelves a few tins, some No. 1 Tins Bull's Head Oysters, a dozen or two cans of salmon and on the top shelf, out of the way, comfortably resting and dust-covered, a long row of pie peaches, peelings and all.

Those peaches were there a long time before I grew large enough to get a job in that particular store. In due time, I became connected with the establishment working on Saturdays and after school, not, I suppose, because the proprietor needed me particularly, but rather because I gave him no peace until he put me on steadily. After becoming properly familiar with the situation, I finally asked the proprietor one day why he didn't sell those peaches. I figured that it should be no trouble to do so, for the reason that peaches were a pretty scarce article in that part of the country those days. He simply told me to take a can home to my mother and see how I liked them. You men know what the contents were like and which no doubt accounted for their long and dreary occupancy on that grocer's particular shelf. I daresay the incident was also my first contact with one of the grocer's problems—the "sticker"—which, unfortunately, find its way into even the most conservative and experienced grocer's stock.

When I contemplate that assortment of canned goods and those with which I came into contact in my early experience as a delivery boy and grocery clerk and the grief we used to have with them, and contrast it with the wonderful assortment of varieties and qualities from every section of the United States, and many parts of the world as well, that are now the staple lines of both the wholesale and retail grocer's stock, then I think I am justified in expressing a few words of tribute to the canning industry and the high esteem in which it is regarded by that large number of retail distributors who, for many years have been engaged in the grocery business and have witnessed the wonderful development of this industry.

Close Relationship Between Canner and Retailer

When we take into proper consideration the importance of canned goods to the retail grocer's stock we can better appreciate the value of the closest co-operation and most

thorough understanding between canners and retailers.

It is the business of members of the National Canners' Association to pack good canned goods, and it is our business to sell them to the ultimate consumer—the housewife. Between us, of course, is the wholesale grocer and broker who in a sense are really acting in the capacity of agents in

assembling them and distributing them to the retail grocer's stock which naturally becomes the pantry for the consuming public.

This is literally and practically true, for there are few if any items in the food line that are so dependably to be found in generous assortment as a complete line of canned foods in the average grocer's stock.

Of course, we know that modern marketing, refrigeration and transportation facilities are making it possible for many fresh vegetables to be available practically throughout the year and there are those who will have them at any cost, often when the canned article is much superior in quality and decidedly more economical in price. On the other hand, when the housewife is thoroughly sold on a quality brand of canned goods, this desire for fresh goods out of season is often largely removed. I doubt if any great portion of the buying public fully, or even in a small degree, appreciates just how great an industry the canning business really is, or what its development really means to the life, well-being and happiness of our people.

They do not sufficiently realize that the finest foods are prepared

and canned when and where the conditions are most favorable for producing the most satisfactory full-flavored, prime articles, and that, year in and year out, vast assortments of mother earth's and dame nature's favored products are awaiting their desire at practically every corner grocery throughout our broad land.

Consumer Education, Important Task

It would seem, therefore, that our biggest mutual problem is making these facts known to the greatest possible number of people. As the retail grocer is your point of contact with the consumer and as he is your personal representative in the friendly relationship you are seeking with the actual user of your goods, it certainly emphasizes the importance of your cultivating and educating him in the fine and essential points of your products, so that he may become a more intelligent, efficient and enthusiastic distributor, representing you properly in all situations.

While of course the consumption of canned goods has grown by leaps and bounds, we know your objectives are to sell more and more, and you have every reason to figure



H. C. Balsiger

* An address delivered before the National Canners' Association at its annual convention at Louisville, Ky., January 16, 1922.

on a great and even more extensive development than the past already shown.

Your methods are better; your product is more dependable; your assortment is greater; your quality is improved; prices are reasonable; and every operation that enters into your process of preparation, is being scientifically studied so as to insure that ever increasing degree of perfection which will, so far as is humanly possible, eventually remove practically every element of uncertainty.

As this is true, why is it not equally necessary to inject that same degree of skill in developing your retail distributor to be what he should be as your personal representative to your final customer? We all agree that an article is never sold until it reaches the man who uses or consumes it. Thus, when your goods are in the stock of the retail grocer the most vital transaction is yet to be made.

Retail Grocer Must Know Product

Now here is where you must stop and recapitulate. Is your product so dependably reliable that the grocer can stand up and tell your customer just what she may expect when she opens the can? If it is, does the grocer himself know it, so that he can impart the information to your customer? Is the product so good for the price charged that your customer will come back and buy it again? If it is, is your brand or name so strikingly emphasized that your customer will remember it and connect it with the quality which she remembered as striking her just right? Is the retail grocer—your personal representative—so completely convinced of all these facts, and is your relationship with him such that he will enthusiastically do his part in helping your customer to continuously prefer your brand?

Your organization is aiming to bring to your individual members a realization of these facts and making an effort to help them collectively meet some of the obstacles which step in their way by an exchange of ideas and information, factor in the success of the individual, for the manifest reason that you have long ago learned the value of this co-operation.

Now we are aiming to do the same thing for our membership, and I think we will both be decidedly better off and be of greater usefulness and value to each other when we understand each other better.

That's precisely why I am here. To cement that friendship that has long characterized the relationship of our two associations and to bring you a message of continued good will and sincere desire and hopes of closer and more definitely concrete co-operation in the future.

Retailers Back Canned Foods Week

We are deeply interested in canned foods week and are truly desirous to do our full part to make a complete and big success of the fine effort which should go a great way in developing that better public appreciation of canned goods which I have previously referred to and which is the one big job ahead of us all.

It was my good fortune to attend the meeting of your canned foods week committee in Chicago, last summer, and there has not been a circular issued from our office since then that hasn't reminded our members of canned foods week.

We are using the stickers and we are ready to do anything which may be suggested by your committee to bring this message to our affiliations in a manner which will inspire action by our local associations and by the individual in his store.

We think you will agree with me that the individual retail grocer is still the source through which your most dependable, reliable, steady distribution will find its natural outlet.

There are newer elements of retail distribution which lay claim to certain superiority which we feel satisfied are largely and rightly discounted by the canning trade even though we may all concede that they provide a channel

through which a considerable volume of certain grades are and will be sold.

We have no quarrel or argument with these newer methods of retailing, for we feel that they have every legitimate right to exercise the functions of their business the same as we contend for our membership, our only attitude being one of insisting that they be not given concessions which place the individually operating merchant at a disadvantage.

Do Chain Stores Undersell Retailers?

Notwithstanding the propaganda designed to convey the impression that the chain store is a sort of semi-philanthropic institution, operating in a way to rescue a long-suffering public from the clutches of a particular type of brigandry called established methods of retailing, we know enough about the game to understand that much of their so-called ability to legitimately undersell the individual retail grocer is largely exaggerated. They "get away with it" before the public because they have the benefit of co-ordinated advertising which enables them to bear down heavy on a few outstanding articles and leave the impression that similar values are offered all the way down the line.

The chain store firm which buys every single item direct from the manufacturer or canner hasn't got the advantage the average mind only too readily concedes. We dare say the executive and administrative, accounting, checking and rechecking, warehousing and delivery expenses come mighty close to equalling the legitimate margins charged by the wholesale grocer for the functions he performs. I say this without qualification, because I believe it.

Even though a recently delivered address on the chain store subject would make the uninitiated feel that here now, at last, was perfection in retail food distribution, I am equally satisfied that any thinking merchant, wholesale as well as retail, can easily detect the ultimate objective of the group in question by carefully studying that address. If this method of retailing is so sound and correct, why, then, does it become necessary in making comparisons of margins with the operations of the individually owned store to refer to the net profits on their part in contrast with the gross margins of the individual retail grocer—and then raise that gross margin 10 per cent higher than the speaker positively knew the admitted average to be?

Retail Prices Steadily Following Downward Trend

While a great deal has been said of late about the retail grocer not properly meeting price recessions, we can point with pride to the fact that retail prices have on the average followed the downward trend with satisfactory promptness and one has only to refer to statistical records to substantiate these statements. We occasionally hear of cases where a certain grocer failed to establish a price which was not in strict accord with the current wholesale price, but the instances are rare, indeed, and if he was out of line no one would ultimately be hurt quite so much as the dealer himself who did not properly adjust his prices.

There are even now some trade paper editors who are of this opinion to some extent, and we note that some of them have decided views on the subject; for recently a suggestion was made that the jobber or wholesaler take a hand in controlling the profiteering retailer. These gentlemen have no doubt spotted some retailer or maybe several of them who are asking a longer margin than they consider just right on certain articles.

No one regrets these practices more than we do, but we really can't help it, for the reason that the man who indulges in the excessive margins complained of is usually a fellow who never reads a trade paper—does not co-operate with anybody—possibly sells some standard advertised commodity at cost or even less and then unscrupulously gets all he can on other goods. This is what we call the "price of rascality." It is born from the practice which offers certain articles at ridiculous prices in

order to attract trade and attention and then hopes to recoup on the goods on which the purchaser is less vigilant. And therein lies the necessity for the maintenance of a standardized price—and justifies the contention of some of our stalwart friends who for years have done everything legally possible to establish their contentions in protection of their products, their trade-marks, and the best interest of their distributors.

Notwithstanding the propaganda which some sensationalists persist in disseminating regarding profiteering in retail lines we consider it too absurd to pay serious attention to. Our Attorney General Daugherty is either sadly lacking in conception of ordinary retail practice, has, no doubt, not looked over the records of his predecessors on the subject, or is evidently entirely ignoring the fact that the joint commission of agricultural inquiry has for about 8 or 9 months been gathering just the kind of information which he now dramatically announces as going to secure through the operations of the great detective Burns.

Facts Will Exonerate Retailers

We simply say—go ahead, Mr. Daugherty, and get the facts. You have the power to do so, and since you seem to have the inclination, there is nothing to stop you. Indeed, it will not be the retail grocer. We have just placed all our cards on the table, faces-up, in the questionnaire recently filled in at a great sacrifice of time by a large number of retail grocers who patiently dug back into their records to furnish the information requested of them.

They are now in Washington, and we invite Mr. Daugherty to refer to them as a part of his investigation. We question, however, whether this will be done, for the reason that we frankly believe the whole nasty propaganda was conceived as a move of political expediency, without regard to the adverse effect it would have upon the already disturbed business conditions.

Even though we personally know that these wild statements are not based upon facts, we must of necessity make a public effort to offset them, because if we remained silent there are those who would immediately conclude that we had no defense and admitted the charges by our failure to controvert them.

As we see it the agricultural bloc in Congress, was menacing the Administration's interests. In order to take this advantage from our agricultural legislators, the President's farm aid program was launched as an administration measure. To do something for the farmer and at the same time make a "grand stand" effort to impress the public was simply keen politics and of course as might be pre-supposed the retailer was the sacrifice—"the goat to get it in the neck." It has happened so often, that we are getting used to it, and it really does not bother those who have the backbone and the ability to stand up and talk to the public as they should in explanation. On this account, in order to do what we can to meet the situation, we are impressing upon our membership the importance of demonstrating to the public by displays and visualizing comparisons of the greater number and quantity of different articles a given sum will purchase in comparison with 18 months ago. The facts and arguments are all on our side.

Aside from the attorney general's statements there is another element which every so often has considerable to say about retail prices. I refer to the banker—a man whose contracts and experience places him in position to know better.

Bankers and Retailers

While the bankers of the nation are and should be recognized as a stabilizing influence, we regret to note that only too frequently they get into the press with statements which often absurd considerable mischief. For instance, the other day in a column called "Wall Street Comment," in the "Kansas City Star," the following was attributed to a New York banker:

"Retail prices are still the sore spot and Wall Street is

expecting developments from that direction before there will be further reductions in wages. A banker said to-day: 'I suppose I am not different from most other men in trying to prove to my wife that she has been paying her baker and butcher prices that were not warranted. And I suppose, too, that my wife is like most other women in trying to make me believe that the trades people with whom she does business are giving her the lowest possible prices. I sent to a friend of mine in a nearby town where there is a good sized packing house, for some rib roast of the same quality my wife had been buying for 45 cents a pound. When she admitted that the meat was as good as that we had been having I showed her the bill, which called for 16 cents a pound. Since then I have made a start, the first real one in getting somewhere in cutting down my household expenses.'

Breaking Up Illegal Price Restrictions

"The supreme court is doing all it can to break up illegal restriction of prices, and the retailer and organized labor alike are doing what they can to maintain war-time conditions. But natural economic laws will bring a return to competition. Retailers are going to have to cut their prices because far-sighted competitors who either bought cheaper or who are forced to get a larger percentage of business is going to cut prices."

Now what do you think of that? That man knows well enough the quality he received from his regular dealer together with service rendered, that he could not even consider the low price arrangement he speaks of from any standpoint. He knows only too well that everything which enters into the whole scheme of distribution makes for variation in price and quality and he also knows that he is contributing to the general confusion by such irrelevant comparisons.

That man regards the value of his time very highly, and yet he will waste it away in looking after some little kitchen detail. If he took the same pains to assemble every little commodity that enters into the requirements of his household and charged the value of his time against it, his cost of living would be still higher than it is.

Facts Bear Out Efficiency of Retailer

There is an array of facts and figures that are most convincing of the efficiency and real economy of the old-line retailers, not to mention the place he occupies in the needs of our nation and the welfare of our people, in the present situation, in the past, as well as in the future, and you will find him on the job faithfully performing a useful and essential service even though he may be much maligned and criticised.

Our national association aiming in a broad, constructive manner, to co-ordinate the efforts of our state and local affiliations in a solution of many of the retail grocers' problems, and we are happy to say that our efforts are meeting with very satisfactory results, notwithstanding that the way is long and rough and often very discouraging.

In order to raise the grade of the retail grocer, to make him a better business man, and to make him receptive to the splendid work that many organizations like yours are doing to help him, we are establishing a "better business bureau."

This bureau is aiming to prepare a course of practical instructions which is designed to emphasize those things every merchant should be intimately acquainted with in order to be properly equipped to make a success of his business and to more effectively serve his customers.

I cannot, in justice to our mutual welfare, leave the platform without telling you of our new department called the "national food shows," because this is an effort which will enable canners to extol the virtues of canned goods to the consuming trade at all principal markets with direct personal contacts under the most favorable environments and opportunities.

The department will co-operate with the local grocers in cities where exhibitions are to be held and will provide an agency for establishing the food show business upon the proper foundation.

Wholesalers Feel Secure For 1922

Co-operation With Manufacturers, Wise Buying, Efficient Merchandising and Selling Bound to Bring Better Conditions

By J. H. McLAURIN*

President Southern Wholesale Grocers' Association

WE are living in a great era of co-operative effort. The co-operative principle applies to every activity in every walk of life but particularly co-operation has developed in modern business. Our industrial and commercial organization is in many respects like a great machine

which is made up of various parts that fit and work together. Like such a machine, also, the dislocation of one part may destroy the usefulness of all, but when all parts work harmoniously together, the most effective results are achieved.

The world has witnessed during the past two years and is witnessing today the results of a great business dislocation. Foreign governments are staggering under a great load of debt. They have from time to time issued vast quantities of paper money. Inflation has touched practically every industry in every country of the world. Foreign exchanges are badly dislocated. Foreign trade is thereby greatly curtailed. The return to normal conditions from inflation has been called deflation. The years 1920 and 1921 have been a period of deflation. This process of deflation which is probably not yet complete in many lines has proven to be a painful operation.

Under the stimulation of war, production got out of line in many respects. The output of factories was diverted to destructive purposes. Prices of all commodities rose to unprecedented heights. Wages, over-head expenses, manufacturing costs were all greatly

increased. When the reversal came, the business machine refused to run smoothly. Adjustments along this line have been and are now being made.

The same disturbing elements affected trade. Transportation costs and merchandising expense greatly increased. In finance, in production and in trade great readjustments have been found necessary. In making these readjustments, manufacturer, merchant and banker have found it well to co-operate. The welfare of one has been discovered to be the welfare of many. In business and in all avenues of life, no man can live to himself alone. Therefore, without genuine co-operation, business as a whole cannot return to a stable condition.

Canned Food Trade a Domestic Problem

Government records show that about 30 per cent in value of the exports of the United States is made up of foodstuffs. The great bulk of these exports, however, is composed of breadstuffs and meat products. Relatively, other foodstuffs than the staple products mentioned are of small importance.

Of the imports into the United States about 30 per cent likewise is made up of foodstuffs. Sixty-three per cent of the imports of foodstuff is made up of two items: sugar and coffee.

The grocery business, therefore, is a domestic business. It is the raw or unprepared foodstuffs which we send to foreign countries. That this surplus could be greatly increased there is no question, but the primary burden on grocery distributors today is the feeding of our own people.

Canned foods, particularly, is today a domestic business. On an average for the years 1910 to 1914 and for eleven months of each year ending with November, the annual export of canned fruit, canned fish, and canned vegetables was \$16,633,815. For the eleven months ending November, 1920, the value of these exported canned foods had increased to \$45,693,927. For the eleven months ending November, 1921, exports had decreased to \$24,505,173. The estimated value for the year 1919 of the output of canned fruit, canned fish and canned vegetables was \$838,000,000. The exports of these food lines never ran greater than from two to five per cent of the output. Again, while the possibilities of development are unlimited in educating the foreign consumer to the value of canned foods, it is true that today the canned food business is a domestic problem.

A domestic problem in business should be worked out to a mutually satisfactory conclusion by the domestic manufacturer and the domestic distributor. Cannery of food and distributors of food have to a great extent common interests. Manufacturers desire to produce. Distributors desire to sell. It would seem, therefore, that no obstacle unsurmountable in character could be placed in the way of these two great groups of business men reaching at satisfactory solution for their problems.

Welfare of Jobbers and Cannery Mutual

The wholesale grocers constitute the commissary department of our nation. On them rests the burden of responsibility for maintaining a supply of foodstuffs and for distributing these foods in the quantity, of the quality, and at the time and place where they are needed. Food must be carried to the consumer at such a price that he can freely purchase. Increased prices limit the market. Good food at moderate and fair prices for the mass of the people is the aim and goal of the distributor.

As business men, it is to the advantage of the jobber to have a reliable and steady source of food supply. For the canner of food, it is necessary to have a large, steady and dependable market. For jobber and canner alike, it is advantageous to have an ever increasing flow of goods from

RESPONSIBILITY OF THE WHOLESALE GROCER

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—J. H. McLAURIN.

* An address delivered before the National Cannery Association at its annual convention at Louisville, Ky., January 16, 1922.

source of production to consumer with a fair return for the services of each. To this extent, at least, the welfare of the jobber and the canner is the same.

The canner of food is a manufacturer. He manufactures his goods to be sold at a reasonable profit. The wholesale grocer, as a merchant, is a buyer and seller of goods. He desires to buy goods and to sell goods if there is a reasonable margin of return for his service. Larger and better business in canned foods should, therefore, be of mutual advantage to canner and jobber.

The preservation of perishable foods by canning and preserving is a great public service. It should never be forgotten that the tin can or the glass jar is a miniature storage warehouse. But for this service to be realized by the public, these foodstuffs must reach the consumer. The jobber stands as distributor to the public of the canners' goods. He does not obstruct the path to market, but he affords the most economical and dependable channel of trade. The canner and the jobber should, therefore, learn the great lesson of this era and seek a method of harmonious co-operation.

Business Outlook Brighter

The wholesale grocer has passed through his valley of the shadow. Indeed, he is not by any means out of that valley. The canners, also, have suffered tremendous depression, but I say to you in all sincerity that canners and jobbers can look forward confidently to an improvement in business. Generally, throughout the country, stocks of goods are running low. In some lines a shortage will undoubtedly appear before a new crop comes on. These stocks must be replenished. To replenish them means orders for the manufacturers. Orders for manufacturers mean a revival of business.

Probably more important still for the security of business is the stabilization of price. Beginning in May, 1920, and ending with July, 1921, there was a period of falling prices such as this country had never known. The average wholesale price of foodstuffs dropped within that period of fourteen months over 50 per cent. Temporarily at least, the end of the period of rapid price decline was reached in July, 1921. The following two months showed a slight advance and since that time although a slight reaction appeared, the variations have been relatively small. There is little doubt but that the next few months will see a rise in certain prices. Nevertheless 1922, barring some great disaster, will never witness the instability of prices that characterized the past two years.

This does not mean, however, that we have yet completed our process of deflation. The prices of various commodities are not now in harmony. Some have fallen with great rapidity. Some have fallen slowly. Others have shown a great reluctance to return to anything like a pre-war level. Prices of commodities, however, form themselves into price systems. There must be a workable relationship in costs among all the necessities of life. Adjustments to this workable relationship must be made for the big business machine to run smoothly and affectively.

There is apparently an insistent demand throughout the country by consumers for prices to fall. The manufacturer of foodstuffs and the distributor of foodstuffs cannot afford to turn a deaf ear to these demands. The welfare of the consumer is the welfare of manufacturer and distributor. "Regard for the public welfare is the highest law." Any advance in the price of necessities will be most unwelcome to the consumer and probably such advance cannot for long be maintained. Nevertheless, all business men can go ahead confidently in the belief that no violent fluctuations in market prices will be experienced in 1922. Their attention should rather be centered upon methods of reducing manufacturing costs and operating expenses. Every step in this direction will be a step toward normal business conditions.

Business Conditions 1921 and 1922

A series of inquiries was recently sent out from our office to representative jobbers in different parts of the country. The replies received in answer to these inquiries will, I believe give a fairly accurate picture of business conditions in the wholesale grocery trade. They afford, also, the representative judgment of grocery jobbers as to the kind of business which awaits us in 1922.

The majority of the jobbers reported a slight decrease in business during the last six months of 1921. The causes assigned to this decrease were a decline in prices and a continued slump in business. The improvement in the cotton section due to the rise in prices at the beginning of September has not been marked. In fact, a slight reaction is noted in the last two months.

From practically all sections of the country have come complaints about the cutting of prices. This cutting of prices is said to be due to a feverish attempt to maintain or increase volume of business under conditions of a general decline. It is declared usually to be the new or less experienced jobber who gets panicky and cuts prices to increase volume. Such competition is, of course, difficult to meet.

There is considerable variation in the financial condition of different districts. It may be said, in general, that there is plenty of money, but the bankers are unusually cautious in making loans. About half of the reports indicated money as easy or fairly easy. The other half reported money as being tight. It is a well known fact that there are vast reserves of funds in the country, as shown by the Federal Reserve Board Report and the market for stocks and bonds, but the financial leaders are somewhat reluctant to loan liberally to business.

1922 Business Coming Slowly But Surely

Prospects for 1922 are on the whole considered better for business than in 1921. The consensus of opinion seemed to be that improvement would come but would come slowly. In the agricultural districts it was the belief that no marked improvement would be seen until new crops had been grown and marketed. That would indicate a period of from 6 to 8 months of dull business. From the industrial districts comes the report that new factories would probably be opened early in 1922 and that the activities of other plants would be much increased. If this expectation is realized, then there will be larger pay-rolls, more money to spend among consumers, better business for the retailers and larger orders for jobbers. In the mining regions there is the same expectation. Many coal mines have not been running full time. Copper mining has been very hard hit. Coal may be improved within the near future. It will probably take longer to bring the copper prices to a paying basis.

Many jobbers feel that business conditions in the United States can never become normal or business men prosperous until foreign conditions are stabilized. Every step toward a better situation abroad is, therefore, a step toward better business in the United States. The great markets for our surplus products have for many years been in western Europe. Until these great nations are again in a position to buy our surplus commodities, limitation in industries will be felt here.

Many jobbers claimed that no restoration of business is possible until the farming condition is improved. There are over six million farmer's families in this country, and a cutting down of their purchasing power naturally means a tremendous limitation in consumption. These jobbers do not see how their purchasing power can be greatly increased until new crops have been marketed at fair prices.

There is, however, an expression of confidence and of mild optimism from all parts of the country. The jobbers believe that bottom has been touched, that the corner is being turned, that better business is not far ahead. This confidence and this optimism may become strong psychological elements in aiding business. The consensus of opinion is that 1922 business will be better than 1921.

In booming times almost any man can make some money. It is deflation and depression that try the temper of the business manager. That man who knows merchandising, who knows his costs and his markets, who has kept his collections in line, who has bought wisely and who pushes his sales vigorously and untiringly is the one who today feels safe and secure. He is in a position to do good business in this new year.

I believe that you will find among the grocery jobbers many such men. They are conservative, dependable merchants; they are your distributors. They will work with you in the great co-operative effort to handle the food supply for our people. May this new year be prosperous for both manufacturer and distributors.

Foreign Trade Essential to Canning Industry

American Packers of Food Products Should Cultivate Markets Abroad to Absorb Part of Their Output

By B. R. HART*

Canned Goods Specialist, Foodstuffs Division, Department of Commerce, Washington, D. C.

IT has been evident to some of the canners for a good many years that eventually the canning industry must needs look to a broader field for the disposition of its products than could be obtained in a purely domestic market. The fact that this was clearly recognized is shown by the foreign sales organizations of some of the canners, especially the milk and meat canners, which organizations were established prior to the world war. At the time of the war, and with the cry for food from all over the world, production of canned foods in this country was increased tremendously and it is now all the more realized that in order to sustain the industry in its growth and to keep it in a growing and healthy condition there must be a resort to foreign markets.

Many other industries in this country are in exactly the same position and are now looking to the markets of the world to absorb a portion of their output.

Reorganization of Commerce Department

Soon after he became Secretary of Commerce, Mr. Hoover conceived the idea of establishing in the Bureau of Foreign and Domestic Commerce, under Dr. Julius Klein, divisions or units devoted to the promotion of trade in their respective commodities. The result of Mr. Hoover's idea was the reorganization of the Bureau of Foreign and Domestic Commerce into commodity divisions, and Mr. Hoover asked the various industries of this country to co-operate with him in the establishing of these commodity divisions. In announcing this reorganization of the Bureau of Foreign and Domestic Commerce, Mr. Hoover stated that "specialists in the different great industrial divisions should be incorporated in the Bureau for the purpose of giving expert direction to those many foreign agents as to the investigations and services that will be of importance and most useful to their particular branch of industry. The men in charge of these divisions have been chosen from the industries themselves and in most instances have been selected in co-operation with their trade associations so that they may bring to the Department not only specialized knowledge and sympathetic understanding of the problems of these particular industrial groups, but in turn may interpret to the foreign staff the needs of these industries."

Canners' Bureau Established

Sometime in October, after several conferences with Mr.

Frank E. Gorrell, Dr. Klein asked that a committee from the National Canners' Association be appointed to confer with the Bureau of Foreign and Domestic Commerce looking toward the establishment of a canned foods unit in the Division of Foodstuffs, of which Mr. E. G. Montgomery is chief.

This committee was appointed by the president of the National Canners' Association and consisted of the following:

C. H. Bentley, California Packing Corporation (Chairman); R. S. Shriver, B. F. Shriver Company, Westminster, Md.; E. S. Thorne, Geneva Preserving Company, Geneva, N. Y.; L. A. Sears, Warrensburg Canning Company, Warrensburg, Ill.; E. G. McDougall, Libby, McNeill & Libby, Chicago.

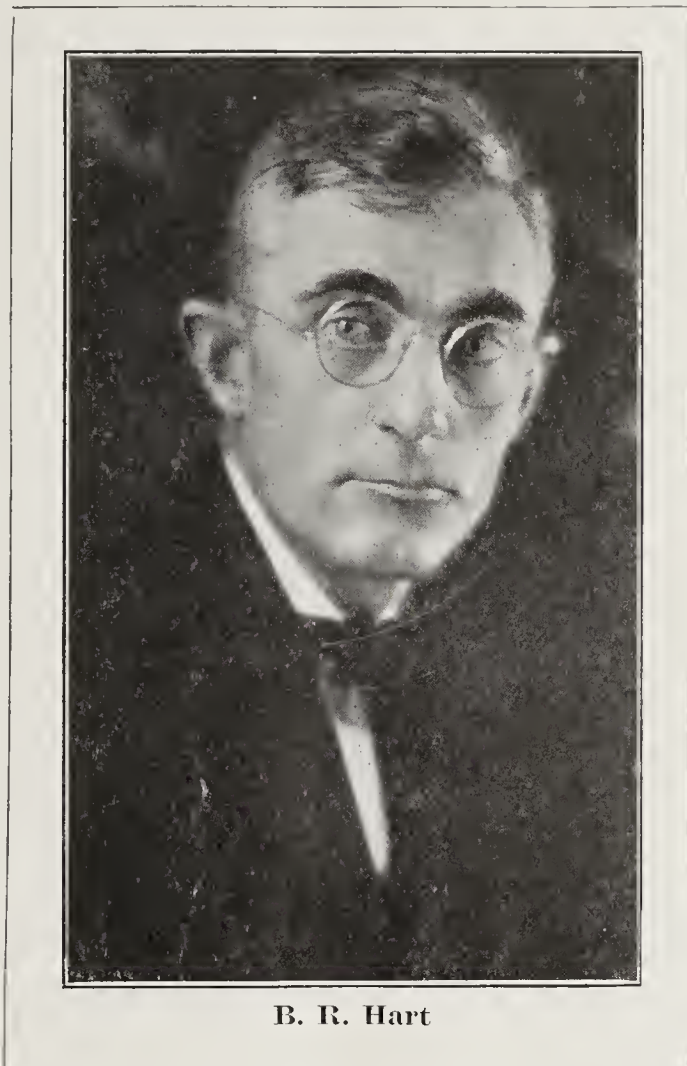
These gentlemen met in Washington in October and after a conference with Dr. Klein and Mr. Montgomery, the canned foods unit was organized and made a part of the Division of Foodstuffs.

I think it is evident to anyone who will give this matter a little thought that Secretary Hoover's entire idea in this connection is that a man should be placed in the Department of Commerce whom the industry itself knows, and I am safe in saying that he hopes very much that the industry will feel that it is personally represented in the department.

Vital Work Ahead of Canned Foods Unit

The whole question of foreign trade presents many difficult problems little understood by the majority of American producers; as a matter of fact, the average American canner to-day knows very little compared to canners in European nations about foreign trade. Until very recently the canned foods industry in this country had very little trouble in disposing of its goods at a fairly satisfactory price. Now, it finds itself face to face with over-production, and with the idea of extending its work it must needs have some help in solving the many problems in connection with foreign trade.

The canned foods unit has in mind at the present time the collection of data showing the consumption, production and amounts imported of all principal articles in practically all the foreign markets of any importance. One of the chief obstacles to foreign trade to-day in canned foods is the very exorbitant and discriminatory tariffs in different countries against the American product. Some of these tariffs are so high, especially in Latin American countries, that when I state that a can of No. 2 tomatoes in certain South American countries retails at from \$1.00 to \$1.25 in gold, I believe that I need not make any further statement as to why they are not sold in large quantities in those countries. We feel that a large amount of these tariff troubles have come about through an improper classification and misapprehension of



B. R. Hart

* An address delivered before the National Canners' Association at its annual convention at Louisville, Ky., January 16-20.

canned foods, in that they are classified as luxuries and not as necessities, and are not recognized or known as a cheap, wholesome article of food. Many of the old classifications in tariff laws are based on such high-priced canned articles as pate-de-foi-gras, canned mushrooms, and the very high priced luxuries which were imported from Europe in times past.

The canned foods unit proposes to study and make available to the canners and others interested in foreign trade all data on canned foods in all of the principal countries of the world, this data to consist of the studies of all the tariffs, custom laws, pure food regulations, shipping and warehouse facilities, commercial law, etc., and to distribute this information regularly in proper manner to the canners in this country. Other information such as trade opportunities and confidential information on world markets furnished to this bureau by more than 600 representatives in all parts of the world will be distributed and the distribution among canners and the canning trade papers of information obtained from special consular reports and reports of our commercial attaches, consular agents, special agents and trade commissioners is to be undertaken.

We also have in mind calling to the attention of our consuls, trade commissioners, special agents, etc., in important foreign countries the misapprehension of classifying American canned foods as luxuries and to ascertain what can be done to secure proper classification. We are preparing a bulletin on canned foods to distribute in many foreign countries by our agents to the buyers in those countries, setting forth the advantages of American canned foods to the foreign buyers.

We expect to make a very detailed study of the factors bearing on the sale of American canned foods in all foreign countries, with especial reference to the tariffs, custom laws, etc., with the idea of determining which of these countries are discriminating against American canned foods, and also which of these countries are demanding a higher rate of duty on our goods than they are paying on similar goods shipped to this country.

Foreign Trade Opportunities for American Canners

I mentioned awhile ago the advantage of trade opportunities. Doubtless many of you know that for many years the representatives of the Bureau of Foreign and Domestic Commerce in foreign countries have forwarded to the bureau what is known as trade opportunities. These trade opportunities usually contain confidential information of the very greatest importance in establishing foreign trade. It has been the custom heretofore, for the reason that the bureau has had no other way to handle it, to publish these opportunities in the old daily Commerce Reports, referring to them by number and giving the general information contained in the requests for information. This work is to be continued, but, in addition to that, we have now arranged to forward these trade opportunities out immediately to the canners who are interested in these lines, giving the full confidential information which these reports contain, and not waiting for them to be published.

Export Statistics

We have also arranged very recently to forward to canners, trade publications, associations, etc., information each month on the imports and exports of the principal canned fruits, vegetables, meats, and milk. The list is as follows, and it is hoped very much that this information will be of great value to all concerned:

Beef	Tomatoes	Sardines
Pork	Other canned	Flaked fish
Mutton	vegetables	Other canned fish
Sausage	Peaches	Peaches
Poultry	Prunes	Pineapples
Meat extracts and boullion	Apricots	Cherries
Other canned meats	Raisins	Pears
Asparagus	Apples	Preserved fruits, jellies and jams
Beans	Others	Plums
Corn	Condensed milk	Other canned fruits
Peas	Evaporated milk	Pickles and sauces
Soups	Powdered milk	
	Salmon	

Urges Canners to Register with Department

The Bureau of Foreign and Domestic Commerce requires that all exporters, or all those who want to export, in this country before receiving confidential information must be listed on the Exporters' Index. The department rightly feels that this is necessary in view of the fact that the information which is collected and which is in the end paid for by American citizens should not be made available to foreign firms. I have been working very hard to get the American canners listed on the Exporters' Index and we would earnestly request that any canner who is interested in foreign trade or wants to obtain this confidential information immediately write to me at the Bureau of Foreign and Domestic Commerce at Washington for applications to be made out so that we may place him on this index. This is required by the department and we have no other way of doing it.

We are building up in the canned foods unit a complete file from all countries as to the types of labels that are commonly in use and the ones that are most popular. I believe that this is one feature of our foreign trade that has never been studied sufficiently by the general run of American canners.

We are handling a tremendous amount of correspondence from all parts of this country and from foreign countries asking for specific information about canned foods, and we are gradually building up very complete and up-to-date information along these lines.

I realize that many of the smaller canners in this country will naturally say that they are not interested in foreign trade—that they have no organization for handling it, and do not intend to enter into foreign trade. I believe that this is a mistaken idea, and I feel that every canner in the country, although he may not realize it, is very much interested in the canned foods unit of the Foodstuffs Division. Is it not a fact that the more goods exported by the larger canners, the more room is left for domestic consumption of the goods produced by the smaller canner? I am sorry that I have not time to go into this question more in detail, but, before closing I would like very much indeed to make an appeal to all the canners of this country for their support and co-operation in this work.

Pending Tariff Bill

I have no doubt that many of the canners present are like a great many other people at the present time—intensely interested in the present tariff bill which is under discussion at Washington. You are undoubtedly aware of the fact that men in administrative positions in Washington are not in a position to make any representations to Congress regarding laws, but there is one particular section of the tariff bill that I would like to call to your attention at this time and make a short explanation of what it means to the industry, if it is enacted into law. As I stated awhile ago, there are a good many countries shipping goods to this country at a lower tariff than our goods are allowed entry into their countries. To provide for an equitable rearrangement, Congress has seen fit to place in the new tariff bill a section which one might call a trading clause, which is something unique in the history of American tariff acts. I refer to Sections 301 and 302 under title 3 of special provisions. Section 301 in plain language authorizes the President to reduce the tariff on similar goods in this country where our tariffs are higher than those in other countries, and section 302 says that it shall be the duty of the President to raise tariffs on articles coming from foreign countries that have a higher rate of duty on products of the United States similar in character, quality or use. I believe that this trading clause, if enacted into law, would be a splendid thing for the industry, in that it would give them something to trade with in countries that speak only in that kind of language.

I believe the fact is evident to anyone who gives the question any thought that the amount of good or useful information that the canner will get from the canned foods unit is in direct proportion to the co-operation and interest that he takes in the work; in other words, we hope very much that you will not be at all bashful in calling upon us for any information regarding canned foods, and if we do not happen to have it in the canned foods unit at the time it is asked for, we can get it if it is to be found anywhere in the world.

Plans Completed For Canned Foods Week

All Trade Factors to Co-operate in Great March Drive to Make Merits of Canned Foods Known

By ROYAL F. CLARK*

Chairman, Canned Foods Week Committee, National Cannery Association

EVERY canner should have, by this time, recorded his vote in favor of the Canned Foods Week movement by contribution and active and energetic support. The urgent need of such a step by the canning industry cannot be disputed, but I am compelled to state that in the solicitation of funds we have had a similar experience as our friend George Cobb had during the recent war on a trip from New York to Chicago. The train upon which he was a passenger was late and excess fare rebate checks were passed to the passengers. Mr. Cobb proceeded to collect these slips for the Red Cross fund and encountered several passengers that did not know there was a war.

This movement was a result of a unanimous vote of the directors of the National Cannery Association at Chicago last June and by the terms of the resolution is to be an annual affair. The vote was prompted by the submission to the directors of hundreds of letters received by your president from prominent railroad officials, wholesale and retail grocers, canners, brokers, and machine and supply men, inquiring as to how the consumption of canned foods could be increased and urging that some step be taken to stimulate buying on the part of the consumer and offering their unqualified assistance and co-operation in any movement taken. A control committee was appointed, consisting of myself as chairman, Russell B. Kingman of Orange, N. J.; James Anderson of Morgan, Utah; J. A. Lee of Chicago and B. Houseels of Los Angeles, California.

Representative Plan of Organization

A plan of organization was agreed upon, such plan being originated by Russell B. Kingman and adopted at a second meeting in Chicago attended by representatives of the wholesale and retail grocers, brokers, machinery and supply association and many others, as well as canners. The plan submitted and adopted was recognized by all present to be not only feasible but one of the most comprehensive plans ever submitted for an economical method of co-operation. Four territorial committeemen were named, covering the United States, who, in turn, were to appoint representatives covering the canners, and allied interests, with sub-committees sufficient in numbers to carry the message direct to the consumer. The office was located in Washington, and we had the pledge and support of the officials of the National Cannery Association and they have

had direct charge of the office under the supervision of Mr. Shook and Mr. Heintz.

The date was originally set for the first week in November, but due to failure of proper response from the canners, it was found necessary to postpone the week until the first week in March. Considerable criticism of the postponement arose from canners throughout the country, pointing out, that as a result of the shortage of canned foods in this country, by the first week in March, the retailer would not have any canned food to offer to the public and any money expended along these lines would be wasted.

Stabilization of Industry Necessary

It was thought by these gentlemen that it would be impossible for the consumer to find a can of corn to purchase; likewise peas and tomatoes, but such letters of criticism have during the past two months discontinued, and I think we can now all agree that if such funds expended in this great undertaking will bear fruit in creating a demand for our product there is an ample store of canned foods to supply such demand. In passing, I would like to note that the change of mind on the part of the canner only indicates the present day urgent need of a better understanding on the part of the canner of our own industry. It further indicates the necessity of greater effort on the part of the canner to stabilize the industry.

The purpose of canned foods week is to secure the united effort of each canner, machinery and supply man, broker, wholesale distributor and retail distributor during the week of March 1 to 8, (1) to make known to the consumer the benefit of canned foods, their wholesomeness and convenience; (2) to stimulate interest of consumers in the purchase of canned foods; (3) to do this in a way which will create a higher regard for canned foods, so that the sales of canned foods week will create permanent converts to the use of such foods; (4) to interest the consumer in purchasing in larger quantities of canned foods during the week.

Co-operation of all Factors in Canned Goods Field

It will be admitted that there are many factors who are vitally interested in stimulating the sale of canned foods—the canner, supply man, broker, wholesale distributor, retail distributor and consumer. A united effort, however, is absolutely necessary to make the week effective. There must be a co-ordination of interest and united effort of all branches of the industry.

It is intended that the week shall be so conducted as to result in a harvest time for the American housewife, and

WHAT CANNED FOODS WEEK WILL DO

“The purpose of canned foods week is to secure the united effort of each canner, machinery and supply man, broker, wholesale distributor and retail distributor during the week of March 1 to 8, to make known to the consumer the benefit of canned foods, their wholesomeness and convenience; to stimulate interest of consumers in the purchase of canned foods; to do this in a way which will create a higher regard for canned foods, so that the sales of Canned Foods Week will create permanent converts to the use of such foods; to interest the consumer in purchasing in larger quantities of canned foods during the week. A united effort, however, is absolutely necessary to make the week effective.”—ROYAL F. CLARK.

* An address delivered before the National Cannery Association at its annual convention at Louisville, Ky., January 17, 1922.

that she shall be the central figure by attractive sales, interesting assortments and combinations, together with tempting displays and offers. The truth about canned foods must be repeated, and the important position which canned foods hold and their economy must be brought home to the people. They must be told of the process out of which canned foods are evolved; attention must be directed to their purity and wholesomeness; and finally they must be told that canned goods are the safest and best foods that they can bring to their table.

Producer in Closer Contact with Consumer

To accomplish these results the producer must through the several agencies come in closer contact with the consumer, and it might be well said that this is a present-day problem of the canning industry upon which its success in a large measure depends. We intend to place attractive display matter in every retail grocery store in the country, consisting to-day of more than forty thousand. This can and will be done through the active co-operation of the jobber through his salesmen and other mediums of distribution. We have secured extensive space from large advertisers of canned foods and free publicity from newspapers with wide circulation. We will have the co-operation of the retailer by offering canned foods at reduced prices, combination sales and other features, and in passing I desire to say that this is the first movement of the canning industry in which we have advanced so far to reach the retail grocer and secure his pledge of co-operation. Thousands of signed pledge cards are now on file for reference.

Notwithstanding the pledge of the distributor, the success of the week largely depends upon intensive local work upon the part of the canner and other allied interests. While contributions are necessary, the local active work on the part of individuals or the 100 per cent co-operation pledge is the essential fundamental which will lead to success.

Every Canner Must Play Part

Every canner should interview his local organizations and obtain an endorsement of this week. In other words, every canner should appoint himself as a member of a large committee to take care of his immediate territory. Whether you reside in a village of 500 or in a city of ten or twenty thousand, you can at least present this matter to such organization, which, in turn, will take it up with the retail grocers and secure from the local papers proper advertising. What we need is an army of co-workers, made up of our own constituents with the one object in view—the placing of the present stock of canned foods into consumption to pave the way for the lower cost canned foods of 1922.

With the right kind of co-operation, every case of canned foods can be moved before the new pack, because statistics show that we do not have an over-production but that there is an under-demand. Let us stop for a moment and picture the entire canning industry with its allied interests working for one week in the localities covered by this industry and imagine the results that would be attained from such intensive work.

Obligation of Producer to Consumer

The plan is new and new plans are necessary, and will become necessary as time goes on. We move with our age or we are left behind. There is no virtue in living in the past. There was a time when no railroad used a telegraph line for its own purpose but the railroad that should operate thus today would go out of business with a great crash. Business must conduct itself in the life and spirit of its own generation. The time is passed when the canner can occupy the position of producer only, taking no part in the distribution of his product. Every transaction involving the sale of canned food through the distributing agencies to the consumer must result in a binding and subsisting contract between the producer and consumer covering its purity and wholesomeness, and we must look to the factors of distribution as the agents of the producer only if we are to keep pace with the present generation.

Many reasons can be assigned for the necessity of change. The loss recently suffered by the wholesale distributor is one rendering it impossible for him to act as a merchandise banker to the extent he has in the past. The fact that the wholesale distributor has embarked more or less on a plan of quick turnover burdens this industry with the necessity of bringing to the retailer the message of turnover. One of the main difficulties with the distribution today is the unwillingness on the part of the retailer to sacrifice. He should be shown that greater profits arise by the taking of the loss of deflation investing in quick turnovers, all of which results in a saving to the consumer. Canned foods week gives this opportunity to the canning industry.

Distribution Machinery Will Swing Back

I believe that the machinery of distribution will ultimately swing back and agree to the old method of purchasing, but we must recognize a complete break in this machinery caused by losses sustained and an effort to recoup such loss at this time. Until such machinery is repaired the canner must to a greater extent than ever before carry the load.

In asking for your financial and co-operative support, it is needless to say the cause is yours. The success of the movement will be just what you make it. The machinery has been set up, oiled, and is ready to run, but we must have steam. Steam costs money. An analysis of the program will convince any one that it is sound and capable of producing results, and your investments of a few dollars now will surely mean much to individual business.

I want to make a final, direct appeal to those that have not signed the pledge cards to go from the room and do so. Get in line on some real constructive work. Only through such co-operative effort on the part of all, shall we get over to the consumer our message of purity and wholesomeness of canned foods.

Big Decline in 1921 Tomato Pack

The 1921 pack of tomatoes in the United States was less than half that of any of the past fifteen years, according to statistics compiled and made public by the National Canners' Association. The total pack for the year is estimated to have been but 4,017,000 cases. The lowest previous pack recorded in the association's comparative figures for each year since 1908 was 8,469,000 cases in 1915. The highest was 15,222,000 cases in 1914.

A light pack had been anticipated last year because of the large carry-over from the previous season's crop and because of lower prices. These factors worked together to discourage planting and acreage was materially reduced throughout the country.

Last year's statistics, with comparisons with previous years, follow:

	1915	1918	1920	*1921
Maryland	3,084,000	6,649,475	3,347,000	1,656,000
Delaware	711,000	879,070	553,000	176,000
New Jersey	325,000	667,036	517,000	116,000
Indiana	419,000	968,219	778,000	530,000
Ohio	157,000	357,283	142,000	71,000
New York	256,000	395,904	515,000	214,000
Missouri	252,000	352,821	715,000	136,000
W. Va., Va.	969,000	1,547,291	1,162,000	217,000
Wash., Colo.	128,000	306,229	218,000	62,000
California	1,281,000	1,789,904	1,773,000	339,000
Utah	329,000	952,539	444,000	132,000
Iowa, Mich., Ill., Minn.	163,000	281,413	250,000	123,000
Pa., Tenn., Ky.	259,000	441,431	680,000	186,000
All other States.	136,000	293,730	274,000	59,000
Totals.	8,469,000	15,882,372	11,368,000	4,017,000

* Included in the above are 338,753 cases no. 10s; 190,390 cases No. 1's; 2,869,351 cases No. 2's; 399,947 cases No. 2½'s, all of which have been equalized to represent No. 3's for the purpose of comparison.

How to Increase Sale of Canned Goods

Quality Too Frequently Sacrificed to Produce at an Attractive Low Price—Importance of "Penny Change"

By R. W. McCREERY*

President Marshall Canning Company, Marshalltown, Iowa

HOW then can we increase the consumption and therefore, the sale of canned foods?

1. By canning and selling only a quality, which will bring the consumer back for more and by helping and fostering in every way possible the making of "universal penny change."

2. By securing at least annually, say January 1, each year, statistics on the total combined stocks of seasonable canned foods in the warehouses of jobbers and canners of the United States.

3. By discouraging all information given out by canners, jobbers or brokers, which does not reflect true facts, be they for or against the market.

4. By uniting in our efforts to secure an amendment to the Sherman Act, whereby trade organizations can legally function in a beneficial way, not only for their own good, but the economic welfare of the public they serve.

If we can and will co-operate in putting these suggestions into effect, good results must follow in the form of a substantial yearly increase in the consumption of canned foods.

Why Is Inferior Food Packed?

Let us analyze:

1. Why is food of inferior quality ever packed? Either because the canner is packing on an advancing market and sacrifices quality to secure quantity production, or the jobber is demanding a price which will enable both the dealer and himself to make their regular profits and still sell to the consumer on an even change basis of 10, 15 or 20 cents per can. In the first instance the canner is voluntarily doing his best to kill his own business and that of his jobbing friends by not packing quality and in the second instance the jobber is forcing the canner to do the same thing.

These policies are wrong and we are paying the price today for our short-sightedness. It is not one year alone which tells the story: it is the average over the years, by which real success and prosperity are measured.

Take sweet corn, for example. Every corn packer knows that the cost to pack good quality as against inferior quality is less than one cent a can.

Every jobber knows he can buy good quality corn from all reputable packers at a cost of less than one cent a can above the cost of corn of inferior quality.

Is it possible to imagine any housewife, no matter how thrifty, who will not cheerfully pay one cent or even two

cents a can more for assured good quality? The housewife is the key to the situation and every time she gets poor quality, no matter how cheaply, she justly resents the fact and is prejudiced not only against the item she bought but against all canned foods. Give her honest quality and the

price she is justly entitled to pay (which can only be done by making penny change) and all will marvel at the increased consumption of canned foods.

What Is a "Right Price?"

We will say the right price to the consumer where the sweet corn is packed and distributed at minimum freight rates is 14 cents. What then is a just and reasonable price for this same product in markets to which the freight is two cents a can higher? Should it be 20 cents a can or shouldn't the right price be 16 cents a can?

Isn't it true that canners and distributors alike pack and sell poor quality with little or no profit and then endeavor to make their quality goods carry a double load?

Who then is to blame if the consumption of our products is not increasing as it should?

An efficient canner of a seasonable food who only turns his capital once a year is entitled to 10 per cent and should then raise or lower his price on the basis of penny change.

As an illustration, let us take pork and beans. Canners are being urged by jobbers from all sides to sell 18 oz. pork and beans at

80 cents per dozen, delivered, so they can be retailed at 10 cents per can. Let us say that the canner cannot sell it for less than 77½ cents per dozen, f. o. b. factory and make a fair profit. It stands to reason then, if the freight to the jobber is 5 cents per dozen the canner must lose 2½ cents per dozen if he is to sell them at 80 cents delivered. If he stands pat for his price, the jobber refuses to buy, giving as his reason that he cannot sell the beans unless they can go to the consumer at 10 cents per can.

The canner has two alternatives. He can cut his cost 2½ cents per dozen by shading his quality or lose the business.

On the other hand, if the jobber would pay 82½ cents and insist upon first quality, the goods could be sold to the dealer at 97½ cents and the dealer in turn sell them at 11 cents per can, or \$1.32 per dozen. In this way, the canner, jobber and retailer would each make a living profit, the consumer would get a product of real quality and all three industries would be benefited by the increased consumption on canned beans that would result.

Importance of Penny Change Plan

Furthermore, the jobber should not insist upon a price from the canner merely to enable him to sell to the dealer at 90



R. W. McCreery

* An address delivered before the National Canners' Association at its annual convention at Louisville, Ky., January 16, 1922.

cents, \$1.10, \$1.35 a dozen, so that the dealer in turn can sell on an even change basis. There is no justice in this policy, yet it is one of the features of our business today which is retarding the consumption of canned foods. In my opinion the lack of interest by the jobbers in educating the dealer to realize the importance of making penny change over the retail counter is one of, if not the biggest, stumbling blocks in our way for a greater production, distribution and consumption of canned foods.

The day is past when the jobber can exist simply as a merchandise banker. He, with the rest of us, must do constructive, progressive work.

The fact is that all of us, and particularly the retailer who does not make universal penny change, is trying to average profits by guess work. Some are too high and some too low. We may guess right for a time but eventually we miss and serious loss follows.

The chain and cash and carry stores make penny change, and the individual retail grocer, one of the best friends and assets to the community in which he lives, and one of the big links in our chain of distribution, is having his troubles because he has failed to grasp the importance of this merchandising principle. He is seriously handicapped because he does not make universal penny change and is compelled to handle inferior quality canned foods in order to carry out his even change theory. Again, I say, we are in an economical age and those of us who do not encourage and foster penny change are losing an opportunity to do effective, constructive work for our mutual good.

The following statement may seem startling but it is economically sound.

The prices of the retail grocer who does not split the nickel into five one-cent pieces are wrong 80 per cent of the time. I feel this thought will grow on every one as you study it.

Inferior Quality Hurting Entire Trade

The canners, who pack and the jobbers and retailers, who buy inferior quality to sell at a price are driving the nails in their own coffins and pulling down with them 90 per cent in all three industries, who are trying to increase consumption by the quality route and by giving a square deal to the consuming public.

Let each of us ask ourselves where we stand on this proposition and then determine to pack quality and sell it at such prices as will induce the retail merchant to fix his prices on the basis of penny change; for this is the only principle of pricing merchandise that is economically sound from the standpoint of the canner, the jobber and the retail merchant.

2. By co-operating to secure at least annually the total supply of canned foods in our combined warehouses.

It seems to me it would be to the advantage of all, including the consumer, to know, say on January 1 of each year, the true facts as to this available supply.

It is the ambition of every canner to operate his plant to maximum capacity. It is the desire of every jobber and retailer to supply every can the public will consume. In the past there have been years of over-production always followed by years of under-production. In the first instance it might seem that the public received a benefit in low cost at the expense of the canner. Is this reasoning, however, fundamentally sound over a period of years or is it desirable?

Public More Than Pays for Its Bargains

In the years of under-production, which always follow over-production does not the public more than pay for its former bargains? I think it does.

Again, let us get back to our platform. That which we desire most is stability in our business, which will insure an honest, moderate profit. If we still subscribe to this thought is it not best that all information possible be developed which will enable the canner to so make his plans on his pack of seasonable foods that he can adequately care for the needs of all who are dependent upon his operations.

The consumption of canned goods is on a hand to mouth basis and seems likely to so continue. The jobbers and retailers will only buy futures in a limited way. We believe the stocks of most canned foods in the hands of consumer,

dealer and jobber are the smallest in many years. I say we believe, for we do not know. Many bankers who in the past have financed canners will refuse to do so because of the uncertainty of the present situation. What is going to be the outcome during the last six months of 1922 and the first six months of 1923? I will leave you to answer this question for yourselves.

If, however, we had from year to year, statistics showing the combined stocks held by jobbers and canners on January 1, this feast and famine process of the past would be largely eliminated.

Again, I repeat that every canner wishes to operate his plant to capacity and every jobber and dealer is anxious to distribute to the limit of his ability, but how, please tell me, how can this all come about unless we have something more tangible and definite upon which to base our work than the worse-than-nothing information of the past?

I tell you we are in an economical age and if we are not efficient as individuals we must give way to those who are. What applies to individuals is equally true of our associations and it is only by efficient co-operation as individuals that our association can live and truly function.

For the jobbers and canners to co-operate in gathering the statistics I have suggested will be in my humble opinion another big step forward.

Discourage Misleading Market Information

3. By discouraging all information which is misleading and does not reflect true facts.

We will not discuss this at length except to say that mis-statements and misrepresentation only make for trouble, uncertainty and later disaster.

The sharp practice of past days is obsolete. The truth and square deal as man to man and canner, broker and jobber, each to the other is the only policy which does and can pay in this year 1922 and the years ahead.

4. The time seems opportune for us to unite in our efforts to secure an amendment to the Sherman Act.

This act has long been a bugaboo to progressive, honest, business and our own Government in order to function efficiently during the war, cast it to the winds.

That an amendment to this act at this time is an economic necessity is clearly apparent to all thinking men. I base my statement that the present is opportune to set about securing relief because of this recognized necessity and because we have real evidence that the United States Chamber of Commerce would lend their aid to such a movement. I, furthermore, believe we would have the full support of many of the most able men in Washington.

Proteins Differ in Their Nutritive Value as Food

Recent investigations in the field of proteins and nutrition conducted by the Bureau of Chemistry, United States Department of Agriculture, have shown that different proteins vary widely in their nutritive value. A diet may furnish a sufficient amount of protein, fat carbohydrates, salts and vitamins and yet fail to promote growth or sustain well-being unless the quality of the protein is nutritionally adequate. Certain of the amino acids, of which about 19 have been found in proteins, are absolutely essential for growth and maintenance, among which are lysine, cystine and tryptophane.

A protein, which is deficient in lysine or cystine, even though it contains all of the other amino acids, will fail from a nutritive standpoint.

Studies with navy, adzuki and lima beans have shown that these foods are lacking in cystine, the amino acid containing sulphur, and that all of them are therefore deficient as sources of complete protein. The lima, adzuki, and other of closely related beans were found by similar experiments to require cooking and addition of cystine before they were adequate for proper nutrition. In practical feeding the deficiency of cystine in cooked beans could be supplied to provide the normal needs of man or animals by including in the diet meat, eggs, milk and cheese and other common articles of food.

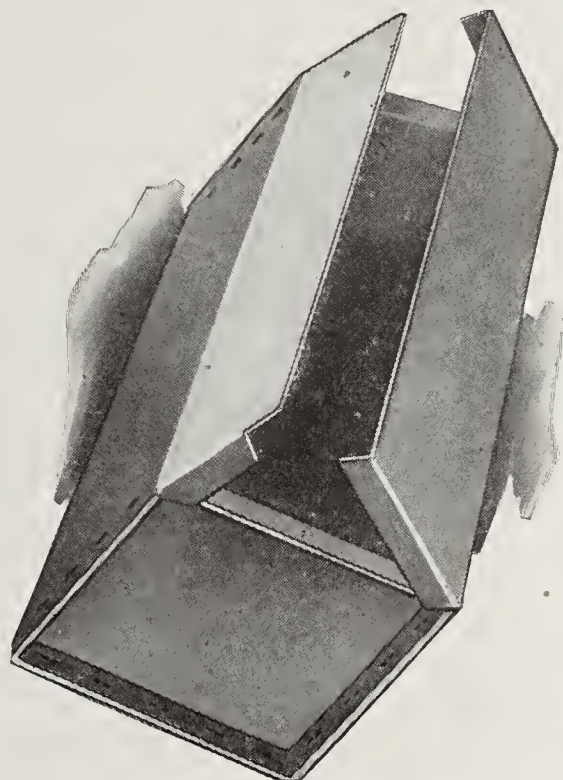
Many New Devices at Canning Exhibition

Comprehensive Collection of Machinery and Equipment Staged at Louisville Armory During Great Convention Week

WHAT was considered one of the most comprehensive exhibitions of canning machinery and equipment yet given outside of the World's Fair was staged at the Louisville Armory during the great get-together conference of the canning industry during the week of January 16. The exposition was given with the co-operation of the National Canners' Association, the National Canning Machinery and Supplies Association, the National Preserving and Fruit Products Association, the National Food Brokers' Association, and the National Pickle Packers' Association. The following are brief descriptions of some of the outstanding features of the exposition:

New Fibre Shipping Case

A new type of case of special adaptability for the canning industry has been put out by the Eddy Paper Company, Three Rivers, Mich. This case is provided with triple flange, vertical grain construction and gives good protection at low cost. The cases are shipped to manufacturer knocked down flat, with end panels sewed to one side wall of the body in correct position. All that is required is to stitch the bottom and other side, filling the case from the top. No silicating is necessary.



Eddy Fibre Shipping Box

Inner flaps have been eliminated and the great amount of boxboard used around the ends provides additional strength and serves as a buffer in rough handling. Stitching equipment provided by the Eddy Company assures an easy and rapid method of operation.

Reducing Glass Breakage By New Sealing Machine

The Aluminum Seal Company, New Kensington, Pa., has added several new types of sealing machines to its regular line. These types known as S A and P R are single head capping machines.

In these two new types, type S A and type P R, a sealing head of the same type as is used in this company's large rotary machine has been installed in a small but sturdy capping machine. In common with the large rotary machine, then, a very low rate of glass breakage results. Glass breakage of one-tenth of one per cent has been experienced by users of "Goldy" rotary sealing machines and this same low rate of breakage should result, it is claimed, with the use of types S A and P R machines.

Type S A machine feeds bottles automatically, taking them from the filling conveyor and passing them on to the labeling machine without handling. It is furnished with or without automatic cap feed. Its maximum speed is 60 bottles per minute.

With Type P R Machine the caps are placed on the bottles and the bottles are fed by hand. This machine handles from 30 to 40 bottles per minute and will accommodate bottles from two inches to thirteen inches in height and from one-half to eight inches in diameter.

Both types of machines have been designed to allow easy adjustment in changing from one cap size to another or from one bottle size to another. Less than twenty minutes is needed to adjust type P R machine from one cap size to another.

The following calculation has been suggested by the Aluminum Seal Company as a fairly accurate means of determining sealing cost per gross of finished glass product:

Labor

- (1) Number of perfectly sealed bottles per hour.
- (2) Gross of perfectly sealed bottles per hour.
- (3) Labor costs \$ per hour per machine.
- (4) (3) divided by (2) \$ per gross, labor cost.

Caps

- (5) Cost \$ per gross.

Breakage

- (6) Average breakage—percentage.
- (7) Cost of glass and product lost per 100.
- (8) Cost of glass and product lost per gross.

Machine Expense

- (9) 6 per cent on equipment investment.
- (10) Annual depreciation.
- (11) (1) plus (2) divided by number of gross packed per year.

Total Cost per Gross (exclusive of repairs, etc.)

- (4) plus (5) plus (8) plus (11).

Pressure Cooker and Cooler

The Anderson-Barngrover Company, San Jose, Calif., as early as 1916 developed a continuous pressure cooker. This was used for cooking corn; later developments included the cooking of peas, string beans and asparagus. Several of these machines are in use today but due to their piston discharge arrangement they are capable of delivering only a moderate capacity.

Constant effort has been made by the company since that time to simplify the feed and discharge valves in order to permit of large capacity service. Experiments conducted in 1919 and 1920 proved the success of the rotary valve for feeding and discharging the cans.

A successful continuous pressure cooler has been finally developed—an entirely new idea of cooling canned foods in a continuous machine working directly in line with a continuous pressure cooker, it is claimed. The cans are cooled sufficiently to handle immediately upon discharging.

At the present time these machines have not been developed to handle any other than the standard sizes of condensed milk cans (household and No. 1 commercial sizes), No. 1 Tall, No. 2, No. 2½ and No. 3 fruit and vegetable cans and round cans only within these general dimensions.

The treatment of different products in these machines varies, due to their nature; milk, for instance, requiring a pre-heater and a gradual increase of temperature, while peas take a higher temperature and shorter cook.

Corn, peas and spinach have been successfully cooked, the product being of a better flavor and more nearly like the fresh vegetable than has ever been attained in the stationery retort.

To date, many fruits have been cooked, and although the machine was not designed with this in view, time may prove



Aeroplane View of Continuous Pressure Cooker and Cooler

that a high temperature and short cook will also give a better flavored and appearing product than with the open-type cookers.

With the steam-tight rotary feed and discharge valves the consumption of steam is very small, and a temperature of 260 degrees is maintained easily with the customary high steam pressure used in cannery work.

A special system of automatic temperature regulation has been developed for this equipment and is essential to the close maintenance of the proper cooking temperature. Labor and floor space, it is claimed, will be saved by the use of the Anderson-Barngrover equipment.

Sanitary Can Washers

A sanitary can washer has been perfected by the Hansen Canning Machinery Company, Port Washington, Wis.

The Hansen sanitary can washer after once being properly installed, it is stated, will practically operate itself automatically. All that is necessary for the operator to do is to open and close the water and steam valves, which can be done simultaneously from the floor by simply pulling a chain which is conveniently located near the filler operator. The washer starts and stops automatically with the filler. The working parts are easily accessible and any can may be removed at any time by merely opening the door. The whole front wall is a door which can readily be opened by loosening two thumb nuts without interfering with the can runways. The can hooks or carriers may be instantly removed and are interchangeable.

The Hansen sanitary can washer has a swivel drive pulley bracket, hence can be belted from any angle. Regardless of which direction the can runways may come it will be convenient to belt to some shaft,—usually the filler counter-shaft overhead. It can be connected to any runway. The washer being small and light may be supported from the ceiling close to the filler by four strap irons. If preferred, it may be placed on the second floor, but it is advisable to have the washer near the filler so that the cans will be filled while hot.

The Hansen machine is substantially built and is made entirely of non-corrosive metal,—mostly of cast aluminum. No sheet metal whatever is used in the construction of this machine.

Indiana Chili Sauce Machine

A new device that, it is claimed, makes a better chili sauce at reduced cost has been recently put on the market by F. H. Langsenkamp, Indianapolis, Ind. The frame of the machine is cast iron and very sturdy. The screen is 17 1/4 inches in diameter and 24 inches long. The machine is about 54 inches long over all and approximately 44 inches high.

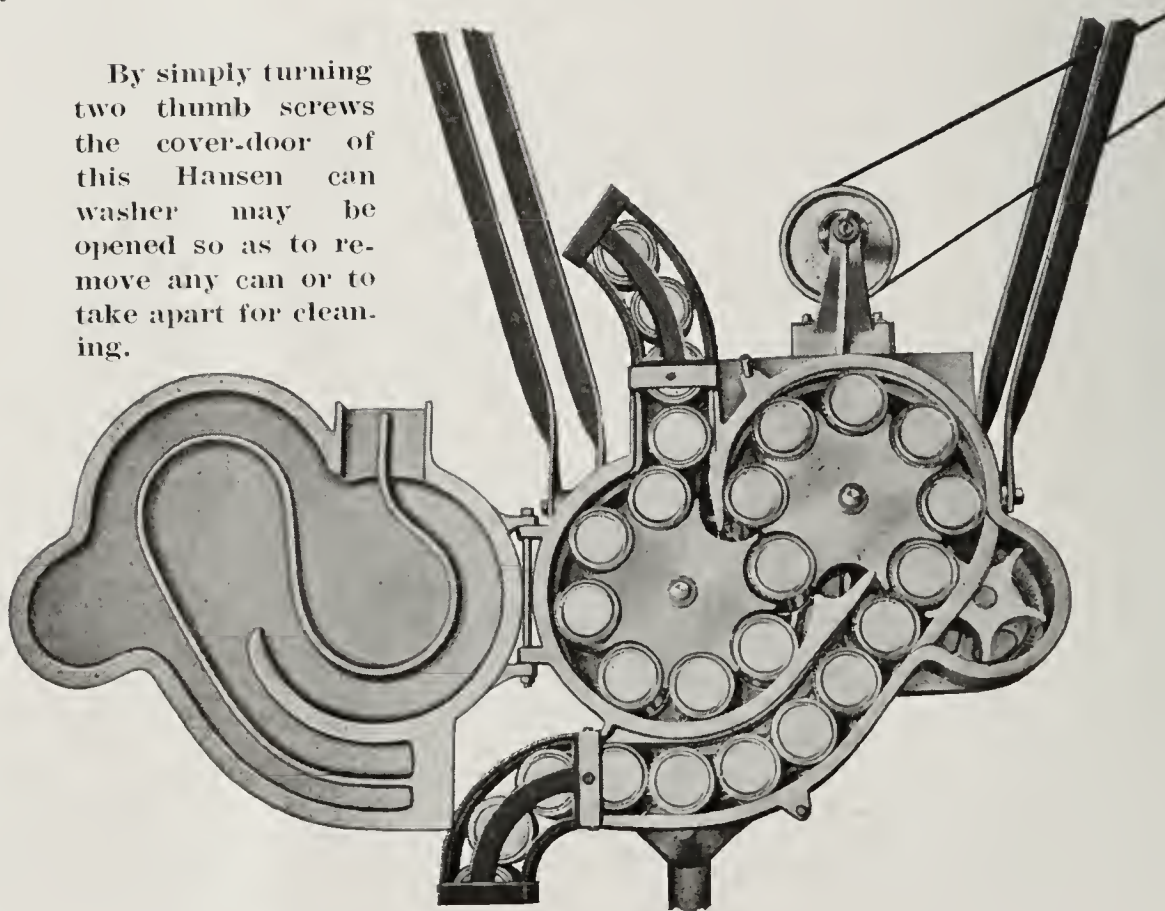
The Indiana chili sauce machine will show, it is claimed, about 35 per cent increase in the amount of product secured from the raw stock, over the amount secured by the old hand method. With this machine all the juice, all the essence, of the tomato so necessary for high grade chili sauce is saved. It is said to be unnecessary to add pulp to secure a proper flavor.

The centrifugal force created by the rapidly revolving paddles discharges all hard and green portions of the tomatoes into the waste, with scarcely any such material and a very low percentage of peel getting into the product.

A New Vent Hole Milk Filler

The F. G. Dickerson Company, Chicago, Ill., is manufacturing a vent hole milk filler characterized by some unique features. The empty cans gravitate noiselessly into the machine and are automatically filled and sealed ready for the sterilizer. The milk likewise enters the machine by gravity and it is this force alone that operates to put the correct amount in every can.

By simply turning two thumb screws the cover-door of this Hansen can washer may be opened so as to remove any can or to take apart for cleaning.



During the filling operation the milk is confined so that flies or other insects, floating particles of dust or the unclean hands of employees cannot reach and contaminate it. Each filler is a factory unit in itself designed to get the greatest efficiency from a given amount of labor.

Fillers are built in two distinct sizes, the baby for baby cans and the tall for tall cans. The combination is a modified tall machine which takes the family cans in addition to the tall.

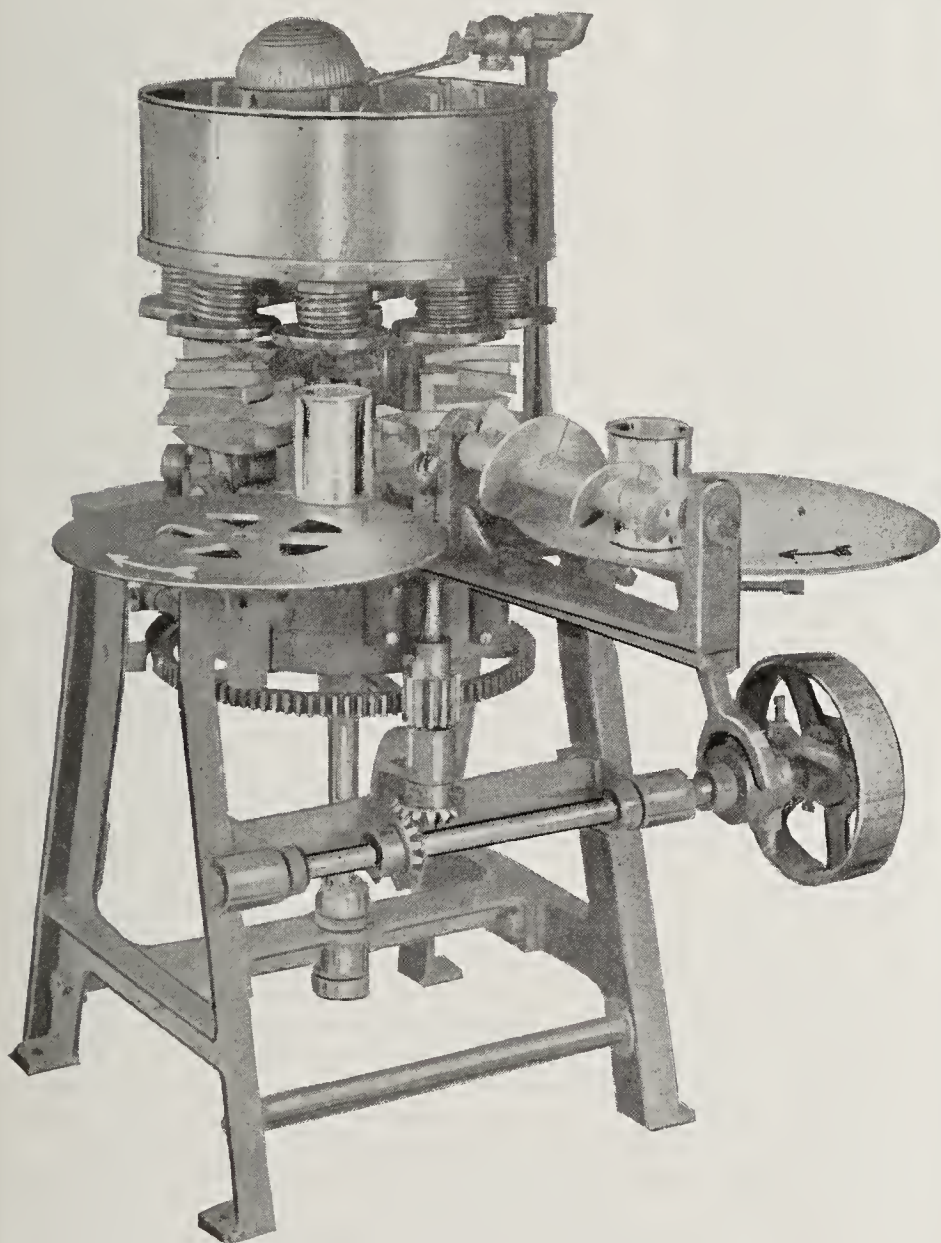
Each machine will deliver approximately the same number of cans per minute (80 or more, depending on conditions) filled to the gram and with vents neatly sealed with the minimum amount of solder.

A Rotary Siruping Machine

A machine manufactured only by Ayers Machine Company, Salem, New Jersey, automatically fills cans or glass jars within an exact distance from the top regardless of the fill of fruit or solids put in the can.

There are eight valves with soft rubbers and are automatic in operation. No can, no fill.

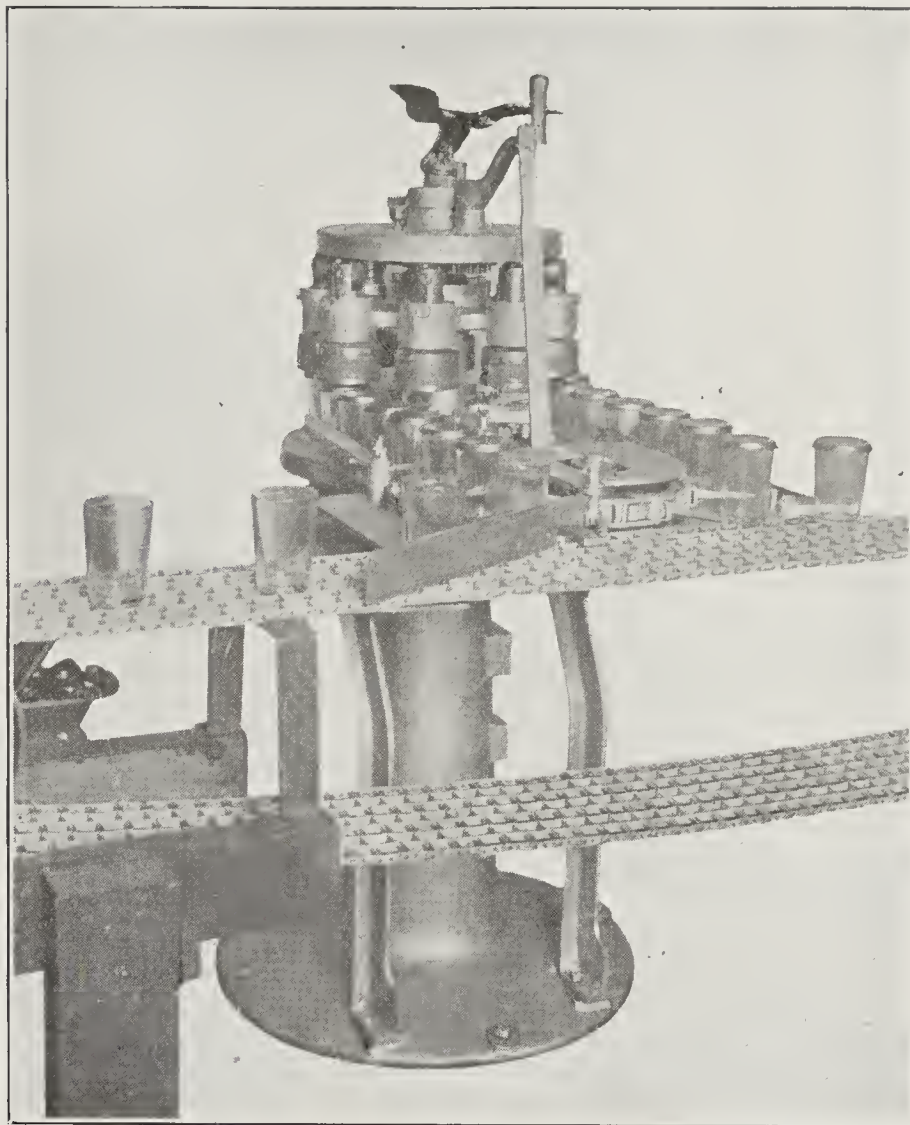
The cans are received on a revolving disk and transferred to a worm which feeds them under the valve. The can having a $1\frac{1}{2}$ inch lift, will operate when over-filled, on materials such as pears, apples, peaches, string beans and the like. The valve does not have a stem to go down to mash the fruit, but only a flat thin plate to press down the fruit. The delivery is by a revolving disk.



Ayers Siruping Machine

American Metal Cap Company Exhibit

At the canners' convention The American Metal Cap Company featured the operation of their Type Nine Tumbler for the application of its friction and American Tumbler caps. In addition to this, the company featured two-piece American wire edge caps for the packing of mayonnaise, pre-



One of the Machines Exhibited by American Metal Company

serves, jellies, vegetables, by the vacuum method through sealing by the hot or cold process.

The American tumbler cap is adaptable for sealing all classes of food products, as used with either tumblers or jars. Jellies and preserves can be filled into the container at a temperature of 180 to 200 degrees, providing a vacuum varying from 14 inches to 20 inches. The machine can be used for the cold packing of all pickles, relishes, etc., and for beef, bacon, fish, dried fruits, etc., when being sealed in a vacuum retort or chamber.

The packing methods, as outlined above, can be applied in the use of the two-piece American wire edge cap, which is also a real practicable closure for the processing of all classes of vegetables and which, when in the hands of the consumer, has the necessary feature of a reseal cap, a feature not duplicated by any other means of metal closures.

At the convention, the American Metal Cap Company exhibited its entire line of caps, including the American wire edge caps, catsup and chili sauce caps, band caps, hand compo caps, 2P.C. Mason caps, vacuum caps, etc., together with photographs of the different types of capping machines that organization supplies for the application of all caps manufactured.

New Improvement on Handycap Machines

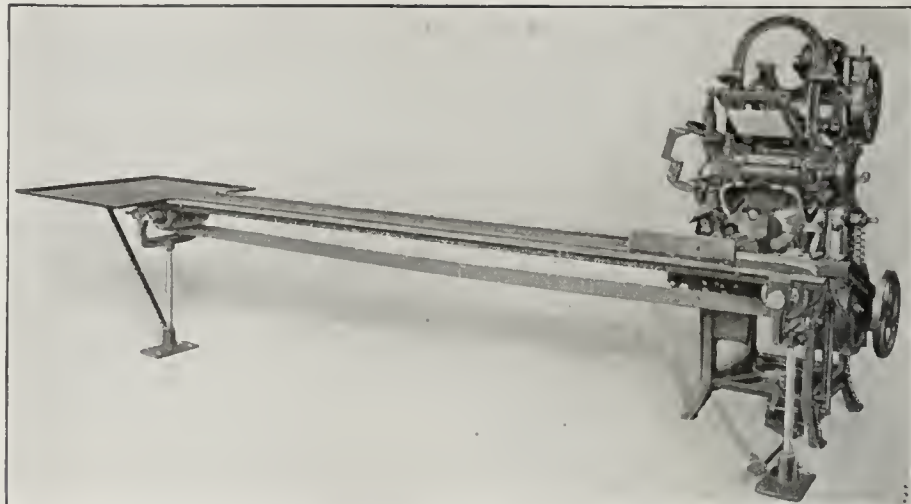
A full automatic rotary crowner has been added to the equipment now being put out by the Handycap Manufacturing Corporation, Chicago. The motor stand has been lowered giving a more rigid drive and better access to the care of the motor. The hopper has been fitted with a ratchet drive giving a positive feed. This, it is believed, eliminates all slippage due to belting. A universal bottle star has been constructed to take care of any size or shape of bottle with a cam adjustment and with a locking device for clamping stars securely to a table. A feed disk has been provided

fitted with a chain drive and a sprocket; the friction lock on stop lever eliminating accidental stoppage of the machine. A feature of the machine is a new design in the capping throat, which allows for great variance in height and diameter of bottles. The oiling system has been improved.

Ermold Labeler

The Improved Ermold labeler with automatic discharge and conveyor, as shown at the Louisville canner's convention, by Edward Ermold Company, New York City, is capable of applying one or two labels at one operation on glass containers of practically any size, and also spot labels on either five or ten pound cans.

The efficiency of the machine is greatly increased, it is claimed, by the addition of the discharge and conveyor attachment, in that the operator has only to feed the bottles or packages to the machine, the machine automatically labeling them and discharging them to the belt conveyor which carries them any distance desired, allowing the labels to become thoroughly set and dry before the packages are



Ermold Labeling Machine

packed. This, also, eliminates considerable handling, after the packages have been labeled, it is believed.

On glass containers a capacity of from fourteen to sixteen thousand bottles or jars a day can be obtained, and from eight to ten thousand five hundred cans.

Increased Sugar Consumption During 1922

American Public Likely to Absorb Some of Present Surplus as Result of Low Prices, Says Department of Commerce

PREDICTIONS of an increased sugar consumption that will absorb some of the present surplus were recently made by the Department of Commerce, basing its estimates on a careful inquiry conducted at the end of last year under the direction of Herbert Hoover and officials of the Food-stuffs Division.

While it is impossible to estimate accurately just how much consumption should increase as a result of the prevailing low prices of today, a recent report of the department points out, it is certain that consumption will adjust itself, within certain limits, according to price. The very high prices of 1920, the report states, had undoubtedly reduced consumption and conversely, the present relatively low price of sugar, which is now reaching the public through lower retail prices, will result in an increased consumption which will fall before the end of 1922.

At the end of December a careful inquiry among the trade was made by the Department of Commerce on "invisible" stocks or supplies usually held by warehouses and wholesalers. During 1918, when exact estimates of invisible stocks were made, they were found to vary from 200,000 to 900,000 tons, with a normal of about 600,000 tons. It is not possible to secure exact figures on invisible stocks at present; but all estimates were very low, apparently 300,000 to 400,000 tons below normal. This is a situation naturally growing out of a steadily declining market.

Experience has shown that when markets decline the stocks in the hands of the wholesale, jobbing, and retail trade become low owing to the expectation that prices will fall further, and the natural tendency is to buy on a hand-to-mouth basis. With a rising market, on the other hand, such stocks become large owing to the attempt to anticipate the market. A rise in the market at present would undoubtedly result in a quick absorption of perhaps a half million tons in the stocks of the country. Reports from England show that the invisible stock is very low in that country also, being estimated by different authorities at 100,000 to 200,000 tons below normal.

Presumably the same condition exists in other countries.

Reasons for Expecting Improvement in Sugar Market in 1922

There is no way of estimating accurately just how much consumption should increase as a result of low prices. We know, however, that consumption does adjust itself, within certain limits, according to price. The very high prices of 1920 undoubtedly had a tendency to reduce consumption, as people soon discovered ways of economizing on high-priced commodities. Conversely, the relatively low price of sugar, which is now reaching the public through lower retail prices, will result in an increased consumption, which will be felt before the end of 1922. If we take this into consideration, together with the fact that the probable carry-over will be reduced to normal by the end of 1922, there is sound reason to expect that sugar prices should stabilize and gradually register some improvement.

There is now no artificial control on the sugar market for practically the first time since the early years of the war, and the law of supply and demand will henceforth determine the price of sugar. There was actual public concern over the prospect of a crash in the Cuban sugar market lest it might result in a very small Cuban production this year, because of difficulty in finding money for the new crop, which must be largely financed in advance. The fact that there is prospect of a stable market has enabled bankers who hold money against the old Cuban sugar crop to carry it safely and to advance sufficient money on the new crop to guarantee practically all the Cuban sugar that can be produced at a reasonable price.

Summary of Sugar Situation

The following conclusions as to the sugar situation were issued by the Department on January 9:

1. There is an abnormal "visible" world surplus of sugar, amounting to about 1,200,000 tons, all congested in the Western Hemisphere.

2. The "invisible" stocks—that is, sugar in the hands of distributing trades, whole-

sale and retail—is far below normal. The amount of subnormality is variously estimated at from 300,000 to 400,000 tons, and is no doubt due to apprehension of further fall in prices.

3. The probable world production for 1922 is estimated to be less by from 400,000 to 800,000 tons than the production for 1921.

4. The consumption for 1922 is likely to be larger than in 1921, and with general economic recovery should exceed production and thus absorb some or all of the surplus.

5. The present price of \$1.87 for c. and f. raw sugar is the lowest level for twenty years, and is below the cost of production about 90 per cent of both domestic and Cuban sugar.

6. This low price of sugar has resulted not only from the fear of the large visible surplus but also from the apprehension of financial difficulties in the sugar market that have been current during the past few months. It has been assumed that in the falling market there might be forced realization of the loans made against existing surplus stocks of sugar; that there would be difficulty in financing the new Cuban crop; that the financial difficulties of the Cuban Government itself might not be readily solved; that there might be bankruptcy amongst sugar producers; that the dissolution of the Cuban Sugar Commission on January 1 might result in considerable liquidation of sugar.

7. The Cuban Sugar Commission was dissolved on January 1, and it is now demonstrated that no appreciable forced liquidation is likely to take place. The banks generally have been well covered down to the low prices of sugar, and there is no likelihood of forced realization. There appears to be sufficient money for financing the new crop wherever it can be produced on a reasonable basis of cost, and the Cuban Government seems to be in a fair way to solve its financial difficulties.

8. The market is now entirely uninfluenced by any artificial control, and the present low-price level manifestly can not long continue without restricting the production of sugar below the world's demands and again creating high prices.

The Dietary Value of Gelatin

While Not a Complete Food Physiologists Have Found That It Plays an Important Role in Animal Economy

By ROBERT HERMAN BOGUE*

Industrial Fellow of the Mellon Institute, University of Pittsburgh

IN the minds of some people there exists a prejudice against the use of gelatin in food on account of the unrefined relationship which they think that it bears to glue, and to what they believe to be the source of the product. True, glue and gelatin are made from similar raw material and are closely related chemically, but so is sweet corn related to silage; so is soap grease related to leaf lard and bacon. From the days of our childhood we have heard that gelatin was made from horns and hoofs, but this is not true and never was true. Neither gelatine nor glue can be obtained from that source.

How Gelatin Is Made

Gelatin and glue are obtained by cooking pieces of skin, tendons, cartilagenous material, and bones with water for short periods of time at temperatures below the boiling point. The collagen of these tissues becomes hydrolyzed forming gelatin which goes into solution. This solution is then concentrated by evaporation in vacuo, chilled until a stiff jelly is produced, and this jelly cut into thin sheets and dried. It may then be broken into flakes or ground into powder for the market.

The fundamental distinction between edible gelatin and glue lies in the selection of the raw material, and the care exercised in handling the several operations in the manufacture. Only the perfectly fresh, clean, healthy stock is permissible for the manufacture of edible gelatin. Calf skins and pates constitute about half of the raw stock used, the balance being mostly a product known as ossein, which is the organic matrix of bones, remaining after dissolving the inorganic constituents in acid. After a very thorough washing, these materials are allowed to soak in lime water to become swollen—sometimes for several weeks. Further washing follows, and the lime is neutralized with an acid, hydrochloric or sulfurous, and again washed. The cooking is conducted in enamel or other non-corrosive tanks, and at no time during the manufacture is the material allowed to come in contact with iron, copper or zinc, or any other metal which might be dissolved and injure the product. Bacterial contamination is especially guarded against. When gelatin is prepared in this manner, and no subsequent deterioration has occurred, there can be no reasonable objection raised, from an aesthetic point of view, to its use in the dietary.

Gelatin As a Food

The role of gelatine in animal economy has been studied by a number of able physiologists and in the light of their findings there is no question of the value of gelatin in the dietary.

We are not, however, permitted to regard gelatin as the equivalent, in the sparing of protein tissue in the body, of the combined proteins such as are found in milk, meat, eggs, etc.

That it functions as a true food is proven, but it is not a complete food. It appears to be incapable of supplying more than about a third to a half of the required nitrogenous matter necessary to maintain a nitrogen equilibrium in the body. A few illustrations will make clear exactly what this means. Kirchmann¹ reported that if gelatin is included in the diet to the extent of 12 per cent of the required energy, the decomposition of body protein, or the requirement of other proteins necessary for equilibrium, is lessened by 27 per cent, but further increases in the administered gelatin failed to diminish the protein katabolism proportionately. For example, gelatin to the extent of 62 per cent diminished the protein decomposition by only 35 per cent. This was the maximum obtained. Up to 12 per cent practically all of the gelatin was absorbed, traces only being found in the faeces.

Krummacher² expresses his results in a slightly different form.

He found that the protein decomposition in dogs during gelatin feeding was 62.6 per cent of that which is broken down during inanition. In the average man the amount of protein which undergoes katabolism in a day is 70 grams. If gelatin is given to the extent of its maximum effect, assuming the same relationships for man as for dogs, 33 grams of gelatin will reduce the katabolized protein to 56 grams, or 33 grams of gelatin will spare 14 grams of protein. Krummacher reports the heat value of gelatin as 5.3676 cal., and upon deducting the value of the unburned products in the urine and faeces it leaves 3.8835 or 72 per cent of the total energy available. The available energy in meat protein has been placed at 74.9 per cent by Rubner, which is but little greater than that found for gelatin.

Murlin³ observed that protein nitrogen might be replaced by gelatin up to a half of the starvation requirement, while as much as two-thirds may be replaced provided carbohydrates are present in such amounts as to provide a half to two-thirds of the total calorific requirement.

Some effort has been directed at an explanation as to why



Robert Herman Bogue

* This article represents a part of a section on "Edible Gelatin" in the writer's forthcoming book on "The Chemistry and Technology of Gelatin and Glue" to be published by the McGraw-Hill Book Co., New York, during the summer of 1922.

¹J. Kirchmann, Z. Biol., 40 (1900), 54.

²O. Krummacher, Z. Biol., 42 (1901), 242.

³J. Murlin, Proc. Am. Physiol. Soc., 29 (1904).

gelatin could not be substituted completely for other types of protein in animal economy, and the conclusions of these studies indicate that its failure in this respect lies in the absence of certain specific and necessary amino residues. Thus tyrosine, cystine, and tryptophane are practically absent in gelatin. Kauffman⁴ adopted this explanation with such confidence that he carried on a series of experiments to test the point, not only upon the proverbially unfortunate dogs, but also upon himself. He reports that gelatin may be substituted for protein normally to the extent of 20 per cent without harm, but that "this can be exceeded and the protein completely replaced by gelatine if the latter is mixed with tyrosine, cystine, and tryptophane. . . . Both dogs however, died." An eminently successful experiment. Sherman⁵ also came to the belief that although the absence of glycine from the products of hydrolysis of a protein was of no significance as regards its nutritive value, yet the absence of more complex radicals such as tryptophane, tyrosine, etc., seriously affected its ability to completely replace katabolized body protein.

Murlin⁶ came to the conclusion that any carbohydrate which was not needed for satisfying the energy requirement was much more efficacious in reducing the nitrogen output than that which was necessary for combustion. He affirmed that the sparing action of gelatin is not due to any dextrose that it may give rise to, but to its content of nitrogenous residues. Glycine, which is the chief amino acid constituent of gelatin, can be retained temporarily in the body, and so may serve to account for the high replacement of other proteins by gelatin. Glycine is not retained permanently, however, even in the presence of an abundance of carbohydrate.

Many other contributions have appeared upon this subject and in every case the conclusions point to the insufficiency of gelatin as a complete protein food. But many other pure proteins, as albumin, fibrin, etc., are also incomplete, and it should be emphasized that in a normal diet where a great variety of ingredients go to make up the dietary the need for a complete food being embodied in any one material is quite negative and a matter of indifference. As one of a variety, however, there can be no reasonable objection raised to the inclusion of a pure gelatin, for it is a true food, a preserver of nitrogen, is easily digested, and is readily burned in the production of energy. The additional value of gelatin in the diet as a protective colloid is probably, however, of even greater importance.

Gelatin as a Protective Colloid and Emulsifying Agent

Many colloidal substances and most suspensions are readily precipitated from solution by the addition of electrolytes. This is especially true of the suspensoid type of colloid such as the colloidal metals, sulfids, oxids, etc., but some proteins are similarly affected. For example, the casein of cow's milk is coagulated as soon as the bacterium lactis acidi has produced a certain small amount of lactic acid, or by the direct addition of a very little mineral or organic acid. There are some colloids, however, that are not only practically uninfluenced by the addition of electrolytes, but that possess the striking and important property of being able to stabilize colloids that are normally easily precipitated, so that a very much greater concentration of electrolyte is required to bring about a coagulation. Exceedingly small amounts of these colloids are able to protect very large volumes of otherwise unstable material.

When the casein of milk is separated from the other constituents it is found very difficult to bring it into a state of colloidal solution, for even traces of electrolytes suffice to precipitate it. An examination of the whole milk shows that it contains:

In true solution	In colloid solution	In suspension
Lactose	casein	milk fat
Mineral Salts	lactalbumin	

and the proportion of these constituents is found to vary in different animals. The stability of the milk and its resistance to the action of acids is found to be proportional to the content of lactalbumin, as shown in the following table by Alexander and Bullowa.⁷

Composition of Milk from Different Sources

Kind of Milk	Casein	Lactalbumin	Fat	Sugar	Behavior with acids and rennin
Cow	3.02	0.53	3.64	4.88	Readily coagulated
Woman	1.03	1.26	3.78	6.21	Not readily coagulated
Goat	3.20	1.09	4.78	4.46	
Ewe	4.97	1.55	6.86	4.91	
Mare	1.24	0.75	1.21	5.67	
Ass	0.67	1.55	1.64	5.99	Not readily coagulated

The order of digestibility also corresponds with the content of lactalbumin, according to Jacobi,⁸ who finds that asses' milk, which is richest in this protein, may often be fed with success to infants who are unable to digest either cow's or woman's milk.

The specific action of the lactalbumin is obviously as a stabilizing agent⁹ which keeps the casein moiety in a finely divided state, and prevents a coagulation of the latter even upon reaching the stomach with its acid secretions. The ultramicroscope has revealed that the size of the casein particles is much smaller in woman's than in cow's milk. It has also shown that flocculation is almost entirely inhibited in cow's milk upon the addition of small amounts of acid if a little gelatin is previously added. This experiment, also confirmed by the extraordinary small "gold number" of gelatin, makes it appear certain that gelatin is capable of functioning as a protective colloid, in conjunction with lactalbumin, in preventing coagulation of milk during digestion. Jacobi¹⁰ advocated the addition of gelatin or gum arabic to cow's milk for infant feeding as early as 1889 and, although the exact nature of the action was not then understood, the beneficial results obtained by such practice were well known. It is very probable also that gelatin functions in keeping the fat in a finely divided condition. When casein is precipitated it carries down with it a considerable portion of the fat, and troubles that have been experienced by an appearance of undigested fat may be due in fact to fat precipitation by the casein.

It must be urged that gelatin will not in all cases entirely prevent the formation of casein curds in the stomach. The acidity may become sufficiently high to produce coagulation in spite of the protective colloids present, but these undoubtedly are of value in retarding and diminishing this undesirable phenomenon. In fact the size of the flake produced, rather than the entire absence of any curd is probably the more important aspect clinically, for if the curd is finely divided and soft the enzymes of the digestive tract will be easily able to dissolve them, whereas if large hard lumps are formed the enzymes may have but little effect upon them. Koplik¹¹ states that the equilibrium between the acid content of the infant's stomach and the protective colloid content of woman's milk is such that coagulation takes place late, and in small soft masses, while upon the ingestion of cow's milk coagulation occurs early, and in large masses.

Herter¹² also finds that addition of gelatin to the milk in cases of serious malnutrition to be highly beneficial, and to result in a much greater absorption of the milk fed. The milk fat tends, in such cases of malnutrition, to coalesce into relatively large masses which are quite impossible of digestion in the infant organism,¹³ and the amount of fat fed is often reduced to less than two per cent without greatly improving the case, while any successful attempt at preventing the coagulation of the casein is simultaneously reflected by a perfect digestion of the fat. Even in adults Moore and Kromholz¹⁴ regard the ingestion of protective colloids in the form of albumins and gelatine as of the high-

⁴M. Kauffman, *Pfluger's Arch.*, 109 (1905), 440.

⁵H. C. Sherman, "Chemistry of Food and Nutrition," (1913), 302.

⁶J. Murlin, *Am. J. Physiol.*, 20 (1907), 234.

⁷J. Alexander and J. Bullowa, *J. Am. Med. Assoc.*, 55 (1910), 1196.

⁸A. Jacobi, *ibid.*, 51 (1908), 1216.

⁹Cf. J. Alexander, *Z. Chem. Ind. Kolloide*, 4 (1909), 86; 5 (1909), 101; 6 (1910), 197.

¹⁰A. Jacobi, "The Intestinal Diseases of Infancy and Early Childhood," 1889.

¹¹H. Koplik, "Diseases of Infancy and Childhood," 1902.

¹²C. Herter, "On Infantile Malnutrition from Chronic Intestinal Infection," 1908.

¹³J. Schereschewsky, *Hyg. lab. U. S. Public Health and Mar. Hosp. Service, Bull.* 31.

¹⁴Moore and Kromholz, *Brit. J. Physiol.*, 22 (1908), 54.

est importance in maintaining an emulsion of the fats which are ingested, and in that way preventing digestive disorders that would result from the non-emulsification of fat masses.

Although investigations upon this subject have been largely confined to the single food milk and to its adaptability for infant feeding, the principle of colloidal protection must be of none the less great importance in many other foods, and in the normal dietary, as well as in that of the sickroom and the preparation of food for invalids. This important phase of dietetics has not been adequately investigated but there can be no doubt in the light of what has already been accomplished that the chemical constitution of a food is only one of a number of the factors which must properly be considered in the selection of a dietary.

If the nitrogen supply is given wholly through the single

protein albumin, or fibrin, or gelatin, the unfortunate victim will starve to death. If a perfectly balanced ration of heat sterilized foods is given, the same misfortune will result. We have discovered that a single pure protein is usually insufficient. We have discovered the hypothetical vitamins. We have observed that a certain association of foods may react in the body quite differently than a certain other association. And in this field lies the influence of the protective colloid. In vitro there is no colloid that exhibits this property of protection to the degree shown by gelatin, and the value of this substance as a part of the normal diet, especially to those who suffer from poor digestion, is probably far more as a protective colloid and emulsifying agent than as a food, but it functions unquestionably as both.

Poll on American Valuation Plan

U. S. Chamber of Commerce Questionnaire Reveals 979 Votes in Favor of Present Ad Valorem Basis Against 833 Opposed

THAT more than half of the business men of the country are against the American valuation plan is indicated by the results of a referendum just completed by the United States Chamber of Commerce, 979 votes being received in favor of the continuation of the present basis of ad valorem duties to 833 in favor of the American valuation plan. A big majority of the membership is opposed to any postponement of tariff legislation, 1,110 votes being received in favor of immediate legislation against 734 in favor of side-tracking the subject until a more opportune time.

More than two-thirds of the membership voted in favor of the recommendation that legislation should permit, in the event of changes of economic factors, adjustment of tariff rates by administrative authorities within limits prescribed by Congress for the purpose of maintaining a consistent tariff policy and for the creation of a tariff adjustment board to administer adjustable rates. The vote was nearly unanimous in favor of reasonable protection for American industries subject to destructive competition from abroad and of benefit to any considerable section of the country, and for maintenance of the principle set forth in the anti-dumping legislation of May, 1921.

A big vote was polled in favor of observing the principle of maintenance and encouragement of our export trade in tariff legislation so far as consistent with the protection of American industries of benefit to any considerable section of the country and subject to destructive competition from abroad, and that tariff legislation should be framed and administered with a view to meet discriminations, direct or indirect, by other countries against American trade.

"Economic advantage to be gained or at least economic disadvantages to be avoided," the chamber declared in announcing the result of the referendum, "seems to be the dominant motive in the struggle over tariff revision, and no schedule, principle, or method of administration calls for an exercise of patriotic devotion that would make secondary either personal or geographic interests.

"Industrial preservation is compelling the legislative bodies of practically all of the leading nations of the world to revise tariff schedules and policies having regard to political as well as economic conditions, and the United States now a creditor nation with enlarged industrial development and expanded commerce in foreign markets, must therefore carefully adjust her tariff policies to her own changed relation to world affairs as well as to changed world conditions.

"The revenue yielding possibilities of the tariff have come to be of little importance in comparison with the direct effect of tariff legislation upon industrial prosperity. The customs revenue for the years 1918, 1919, and 1920 constituted but five per cent approximately of the total revenue of the gov-

ernment; hence, that source of revenue, which once played an important part in the cost of carrying on the federal government, has become an almost negligible factor, and tariff for revenue only would probably not now be advanced as a major party plea or as an economic consideration of vital importance to our people in lessening the burden of direct taxation.

"There is no thought of urging a Chinese Wall type of protection, nor a policy of attempting to foster any and every industry that may be started on American soil. American industries are fully prepared to face any reasonable competition, but there must be protection against emergency prices and emergency conditions that may prove destructive, and such protection should be assured under a flexible application of the rate schedule."

New Internal Revenue Regulations For Candy

NEW regulations (No. 47) dealing with the tax on sales of certain commodities by manufacturers provided by the recently enacted revenue law have been issued by the Bureau of Internal Revenue, of the Treasury Department. Article 19 deals with candy. Apparently there has been some misunderstanding as to the application of this tax for paragraph (b) of Article 19 states that candy within the meaning of this subdivision "does not include cereal breakfast foods, cakes and pastries, bitter chocolate which needs the addition of sugar before it becomes pleasing to the taste, powdered chocolate, maple sugar or sirup not mixed with nuts, etc., marshmallow paste, glaze or candied fruit peel and citron, or sweet chocolate, glaze or candied fruits and nuts sold by the manufacturer under circumstances where it is obvious from the condition of the product, method of packing, or from other facts in connection with the sale, that it will not be consumed in the form in which it is then sold."

There is included in the provision as taxable commodities, "chocolate creams, bonbons, gumdrops, jelly drops, jelly beans, imperials, caramels, stick candy, lozenges, taffies, candy kisses, wafers, fudges, or Italian creams, nougats, peanut brittle, sugared almonds, chocolate-covered fruits and nuts, glaze or candied fruits and nuts not specified in paragraph (b) of this subdivision; pop corn and other cereals or cereal products not specified in paragraph (b) of this subdivision, mixed with or covered with molasses, sugar, or other sweetening agent; hard candies, plain and chocolate covered marshmallows; candy cough drops sold in bulk and without remedial claims; sweetened licorice; sweet chocolate and sweet milk chocolate, whether plain or mixed with fruits or nuts, not specified in paragraph (b) of this subdivision; maple sugar mixed with fruit, nuts, etc., not specified in paragraph (b) of this subdivision; and all similar articles however designated."

WHAT OUR READERS SAY

Editor's Note: Readers of The American Food Journal are invited to make this Department an Open Forum for the discussion of any subject of interest to the food trades.

Food Chemist on Merits of Self-Rising Flour

Editor, The American Food Journal:

In the December issue of The American Food Journal there are two articles that treat self-rising flour that are very interesting. During the past year an investigation of prepared flour with the leavening ingredients and salt added, commonly called self-rising flour, as compared with plain flour prepared with ordinary baking has been made by the Division of Chemistry of the Florida Department of Agriculture. Self-rising flour as sold in Florida is usually prepared with salt, soda, and phosphate. There is little, if any, self-rising flour prepared with cream of tartar or alum baking powders.

The analysis of self-rising and plain flours has shown that the quality of the self-rising and plain flours of the same grade and similar price is about the same. Analysis of bread made from self-rising flour and plain flour with a phosphate baking powder and salt added shows the same amount of ash in both breads and with similar composition. It has been reported that acid phosphate, as prepared and used for fertilizer, was being used as the acid ingredient of the leavening agents in self-rising flour. This would be shown by a higher content of sulphates in the ash, but analysis has failed to show any higher content of sulphates in self-rising flour than in plain flour prepared with a phosphate baking powder.

Reports from wholesalers, jobbers, and retailers show that at least 90 per cent, probably 95 per cent, of the flour sold to the domestic trade in Florida is self-rising flour. Probably most of the plain flour sold is used for making cakes and other fancy foods, as practically all of this is sold in towns large enough to be supplied with bakers' bread and is the highest grade of flour sold. These reports show that coincident with the increase in the sale of self-rising flour there has been a decrease in the sale of baking powder; particularly, the cheap and low grade baking powders. Likewise, the sale of cooking soda has decreased but not to the same extent as baking powder as it has various other uses around the home than as a leavening agent. The majority of self-rising flour sold in Florida is low grade, but this is not different from the conditions before the introduction of self-rising flour, as the majority of flour sold in Florida then was low grade.

Laboratory experiments and the reports of merchants both show that the loss from deterioration is less with self-rising flour than with baking powder. This is probably due to two reasons. First, flour is not kept on hand as long before final consumption as baking powder, either by the dealer or consumer. Second, the leavening ingredients in self-rising flour are diluted much more than in baking powder and consequently do not react as readily from atmospheric moisture.

Experience in traveling through the rural sections and eating at turpentine camps, sawmills, farms, and small town boarding houses has shown that with the use of self-rising flour the old soggy baking powder biscuits and the yellow soda biscuits have largely disappeared, and it is possible to get good biscuits almost anywhere at the present time.

Self-rising flour, as well as plain flour and other foods, is not all good and needs regulation. Self-rising flour is just as liable to be short weight, mouldy, or full of weevils as plain flour. However, laboratory experiments, reports from merchants, and observation of the sale and use of self-rising

flour in the making of biscuits, which is the chief use of flour in Florida, have shown that self-rising flour is a wholesome product that has filled a need with a great many people of Florida, and when properly made and handled, deserves the same consideration as any other wholesome food product.

Yours very truly,

A. M. HENRY,
Food and Drug Chemist,
Division of Chemistry,
Department of Agriculture,
State of Florida.

January 23, 1922.

Preservers Ask Tariff Protection

Editor, The American Food Journal:

Our association feels that unless adequate protection is given the industry in the framing of the new tariff now before the Senate, the industry will be seriously hurt by the influx of enormous quantities of British jams from England and Australia.

The American valuation plan is the only plan that has been suggested that will give adequate protection to the American manufacturer. Under normal conditions a duty may be assessed either specifically or ad valorem to take care of the difference which exists between the cost of labor and packages on the other side and the cost of labor and packages on this side, but under abnormal conditions which exist today on account of severe depreciation in foreign currency, it would be impossible to frame a tariff unless the duty was collected on the value of the product on its arrival here. The American plan does more. It immediately obviates any possibility of under-valuation, and whilst it will not altogether balance up the difference between the cost of manufacture on the other side in comparing it with the cost of manufacture on this side, at least all articles of the same quality reaching the United States, irrespective from whence they come, will be entered at the same rate of duty.

All that American manufacturers want is a square deal.

R. U. DELAPENHA.

National Preservers' and Fruit Products Association,
New York City.

January 23, 1922.

Can't Keep The Food Journal

Editor, The American Food Journal:

We are pleased to state that we find The American Food Journal very interesting and useful in our work. It has had such splendid educational articles on the subject of dehydration, that the only complaint we can make is that we find we can not keep a copy in the office for any length of time, as they are carried away by interested parties.

We have in the past three months established distributors and offices in 25 states and Canada for the distribution of the Perfection dehydrator and have recently requested all of our distributors to subscribe for this journal, as we are quite sure it will be of great interest to them.

Wishing you success for your fine publication, we have the pleasure to remain,

Very truly yours,

PERFECTION DEHYDRATOR COMPANY,

By J. W. RUSSELL,
Kansas City, Mo.

January 9, 1922.

EDITORIAL

Making Better Canned Foods

IF the place which canned foods hold in the human dietary is to be successfully maintained the best possible product is essential. This sentiment was expressed by several speakers at the recent annual convention of the National Canners' Association, and was emphasized particularly by the retiring president, Mr. Strasbaugh, when he said in his opening address:

"It is believed not only by those canners who have favored quality in the past, but also by those who have not, that the time has arrived when the canning industry must produce a satisfactory product, not every once in a while, but all the time. Even the careless canners are now fully appreciating that the consumer must be pleased if a worth-while volume of business is to be awarded the canning industry in the future."

President Strasbaugh went on record as recommending "that the association continue its efforts in discouraging intentional canning of inferior products and the production of inferior and off-grades whenever the same can be avoided" and further suggested "that the members . . . co-operate with the executive officers in bringing about the use of proper labels, so that misbranding of every kind can be avoided, and every can labeled intelligently so that the consumer may know what to expect from the label."

That the association intends to wield the "big stick" whenever possible to enforce the fullest compliance with honest packing and honest labeling is indicated by the further recommendation that cases of misbranding be reported to the association's executive offices whenever such come to the attention of members.

As was pointed out in the address of C. H. Bentley, the widespread publicity given to cases of poisoning from ripe olives and some other food products has injured the standing of canned foods with many consumers, even though it later has been proved, with the exception of the ripe olive cases, that home-canned products were in most instances responsible for the illnesses. Ripe olive packers have admitted their responsibility, and means were taken some time ago to improve their processes so that repetition of poisoning would be avoided.

Only two things can be done, Mr. Bentley points out, to overcome the prejudice which has been aroused in the public mind. One is through research work to find ways and means of improving canned products and the other is to seek to remove such prejudices by intelligently-planned publicity.

This \$800,000,000 industry can not afford to leave any stone unturned to maintain the excellent standing which most of its products enjoy.

Referee Reports on Milk Compounds

THE fight which has been waged for and against milk compounds, and which reached an acute stage with the passage in Wisconsin of a law prohibiting their manufacture and sale, may soon be passed upon by the Wisconsin Supreme Court, which has been asked by the Carnation Milk Products Company and the Hebe Company of Chicago to determine the constitutionality of the State law, the technical defendant in the case being J. Q. Emery, Dairy and Food Commissioner of the State.

Following hearings which lasted from November 17 to December 1, last, and which filled 1,700 typewritten pages, Judge A. G. Zimmerman, who was appointed by the court as special referee in the case, has filed his report of facts, and upon this report the Wisconsin Supreme Court will base its findings.

As an important element in the case against Hebe and

other milk compounds was the claim that they are lacking in growth-promoting vitamins, and therefore unfit as food for infant consumption, the statement of Referee Zimmerman on this point is of interest.

He states that "a varied diet such as is used by the American people generally supplies ample vitamins; that the amount of any particular vitamin necessary for proper growth is not known and that no particular vitamin can properly be called the 'growth vitamin.'"

In this issue the referee's report is published in full. Comments on the report are, of course, not permissible as the court has not yet passed upon it, but the food interests which are directly or indirectly affected by the ultimate outcome of this case will await anxiously the final decision.

Foreign Trade in Canned Foods

AN export trade specialist in canned goods from the United States Department of Commerce pointed out to the canners assembled at Louisville last month the great possibilities in export of American canned foods. Unfortunately many canners have paid so much attention to the domestic market that little thought has been given to foreign markets. This is a typically American attitude and if it is a fault it is one which is not confined to the canning industry.

There is much to be said in defense of the canners in not more actively seeking export trade. The discriminations in the customs laws of certain foreign countries have been a serious deterrent. Some of the South American countries class canned foods of every-day use as luxuries, placing them in the same category with certain special products put up in France and other countries which are more or less in the luxury class. Even France, which exports to this country a considerable quantity of its products, such, for example, as *pate-de-foie-gras*, exacts a much higher rate of duty on incoming American canned products than we place on her products when received in this country. The advantage, therefore, of reciprocal tariff arrangements with various countries, such as has been suggested by canners to the Senate finance committee, is readily apparent, and it is to be hoped that Congress will make such provision in the new tariff bill.

The Future of Dehydration

A GOVERNMENT expert who has made intensive study of dehydration predicts that in ten years this form of food preservation will occupy a position in the United States fully equal to that now enjoyed by the canning industry.

Along scientific lines dehydration has already made great headway, but commercially some snags have been struck which impede progress. The greatest success commercially has been achieved by those companies which have to some extent specialized in manufacturing certain dehydrated products for which a market had already been created. For example, for some time large quantities of dehydrated orange peel have been shipped to England for the manufacture of orange marmalade, a product of great popularity in that country. Before the dehydrated method was employed the peel was shipped in brine at much greater expense.

The American Food Journal has recently related the success which has followed the efforts of certain companies to dehydrate bananas. Grape fruit is another product with which experiments have been made. Now a New York company has developed a way in which to dehydrate lemons by the spray process, and a market for the lemon powder for soda water flavors, candy, lemonade and other products is within grasp without the expensive marketing campaigns which seemingly have thus far been necessary in educating the housewife to use dehydrated fruits and vegetables.



Senate Hears Food Interests on Tariff

Bentley of Canners' Association Urges "Swapping Tariff"—Edible Oil, Cocoa and Sugar Industries Represented at Hearings

By CLARENCE L. LINZ

Washington Bureau, The American Food Journal, 622 Albee Building, Washington, D. C.

THE Senate finance committee has before it a huge volume of testimony presented by witnesses for and against a tariff on imported merchandise of all kinds. Included is much information on the subject of foodstuffs, and in this, edible oils play the major part. It is a huge task that the committee faces, when one considers that there are large numbers of people who are interested in imported merchandise just as there are large numbers engaged in manufacturing, and the retail storekeepers of the country are not inclined as a class to favor high tariffs.

The agricultural bloc in the Senate will play a prominent part in the writing of the rates on farm products. With tariff on the basic raw materials such imports as may be provided must be fairly reflected in the finished articles, and so the action of the finance committee on wheat is of marked interest because of its effect upon flour and in turn upon the various manufactures of flour, including, say, macaroni and spaghetti.

Last month, the agricultural bloc, through Senator Gooding of Idaho, presented a schedule of rates on farm products to the committee for inclusion in the agricultural schedule for the Fordney tariff bill, as follows:

	Fordney Rate	Farm bloc Demand	Ad Val. Equivalent
Wheat	25c bu.	30c bu.	28%
Barley	15c bu.	20c bu.	40%
Oats	10c bu.	15c bu.	39%
Rye	10c bu.	15c bu.	20%
Cattle under 2 years	1c lb.	*1¾c lb.	21½%
*Cattle of all ages.			
Fresh beef and veal.....	2c lb.	2½c lb.	21½%
Cattle 2 years and over.....	1¾c lb.		
Sheep and goats	1c lb.	\$2 head	33 1-3%
Fresh mutton	1½c lb.	2½c lb.	25%
Lamb	2c lb.	2c lb.	26 2-3%
Swine	½c lb.	¾c lb.	10%
Bacon and ham.....	1¾c lb.	2c lb.	10%
Fresh pork	¾c lb.	1c lb.	6%
Butter	8c lb.	10c lb.	25%
Butter substitutes		10c lb.	

	Fordney Rate	Farm bloc Demand	Ad Val. Equivalent
Milk	1c gal.	*3½c gal.	9%
*Sweet or sour.			
Milk, skim		1c gal.	
Cream, less than 5% B. F.....	5c gal.		
Cream, 5% B. F. or more....	10c gal.		
Cream, sweet or sour, not more than 20% B. F.		15c gal. & 5c gal. for each addl. 5%, 6% or fraction.	
Ice cream mixtures, frozen or unfrozen		5c gal. not more than 10% B. F.; 5c gal. for each addl. 5% or fraction thereof.	
Milk, condensed or evaporated, not sweetened	1c lb.	1c lb.	
Sweetened	1½c lb.	1½c lb.	
Milk, all other		1¾c lb.	
Milk powder	3c lb.	*4½c lb.	
*Whole milk.			
Cream powder	8c lb.	8c lb.	
Skim milk powder ..	1c lb.	1½c lb.	
Straw	\$1 ton	\$1.50 ton	9 1-3%
Eggs in shell	6c doz.	8c doz.	20%
Eggs, dried	15c lb.	24c lb.	50%
Eggs, frozen	4c lb.	8c lb.	28%
Poultry, dressed or undressed.	4c lb.	6c lb.	17%
All others val. at more than \$5	20% ad val.	\$1 head	20%
Grapes, in packages	25c cu. ft.	25c cu. ft.	2%
Grapes, fresh, not pkd. in cork		1c lb.	10%
Raisins	2c lb.	3c lb.	16 2-3%
Other dried grapes & currants		4c lb.	20%
Peaches and pears, dried, des- sicated and evaporated.....	1c lb.	2c lb.	12½%
Corn	15c lb.	20c lb.	45%
Beans, dried	1¼c lb.	3c lb.	66 2-3%
Peas, green	75c cwt.	1c lb.	20%

	Fordney Rate	Farm bloc Demand	Ad Val. Equivalent
Potatoes	42c cwt.	¾c lb.	37 ½%
Potato flour	1½c lb.	3c lb.	
Honey	2½c lb.	4c lb.	26 2-3%
Millet, seed	½c lb.	1c lb.	
Flax seed	25c bu.	10c bu.	22%
All grass seed		4c lb.	
Hides, green	free	2c lb.	13 1-3%
Hides, dried	free	6c lb.	13 1-3%
Linseed oil		3½c lb.	
Rice (rough)	1c lb.	2c lb.	
Almonds, shelled	4c lb.	5c lb.	25%
Almonds, unshelled	2½c lb.	4c lb.	
Almonds, unshelled	4c lb.	5c lb.	25%
Almonds, shelled	12c lb.	15c lb.	41%
Walnuts, unshelled	2½c lb.	4c lb.	16%
Walnuts, shelled	7½c lb.	12c lb.	20%
Citrate of lime	7c lb.	12c lb.	
Citric acid	12c lb.	20c lb.	
Fruit juices	70c gal.	70c gal.	
Oils of lemon and orange	20% ad val.	40c ad val.	
Coconut oil	2c lb.	4c lb.	50%
Soya bean oil	2c lb.	4c lb.	36%
Cottonseed oil	2c lb.	4c lb.	58%
Peanut oil	2½c lb.	4½c lb.	33%
Olive oil	6½c lb.	7½c lb.	
Long staple cotton	free	15c lb.	
Short staple cotton	free	5c lb.	
Cotton seed	20% ad val.	¾c lb.	

Canners Want Protection on Canned Goods

The National Canners' Association, through Charles H. Bentley, vice-president of the California Packing Corporation, San Francisco, Calif., and chairman of the association's foreign trade committee, told the committee that this association is not so much concerned in the matter of securing a protective tariff on canned foods as with the idea of securing a trading basis, in order that its members may negotiate reductions in certain foreign countries which at present are shipping canned goods to the United States and will continue to do so under the provisions of the Fordney bill on a much lower rate of tariff than they charge American manufacturers of similar products entering their territories.

"In our endeavor to develop foreign markets on our products," he said, "we find ourselves cut off by high import duties, much higher than the duties contemplated in our own country on similar products.

"We are admitting products from Japan and France, in the way of canned foods, at a very much lower rate of duty. France is shipping large quantities of canned sardines and peas; Spain is shipping canned pimentos; Italy, canned olives, olive oil and tuna fish; Canada, various kinds of canned fish and canned vegetables into the border towns; Latin-American countries, Argentine and Brazil are shipping canned meats into this country, all under a much lower rate of duty than they charge on our canned foods. We would like to be in a position to use this opportunity for securing reduced tariffs in those countries on the general line of canned foods."

Mr. Bentley was advocating a "swapping" tariff, and he was joined in this by representatives of other industries that do not want to shut out imported goods, but do want a fair exchange of trade.

Italian Chamber Opposes Change to Underwood Bill

Opposition in a wholesale way was presented to the committee by L. J. Scaramelli, representing the Italian Chamber of Commerce of New York, who told the senators that there was no need for any change in the rates from those contained in the present Underwood tariff law. What he talked about particularly in his discussion was cheese, olive oil, cherries in brine, tomatoes, best canned goods, preserved fish, citron, orange and lemon peel, macaroni and similar provisions.

Stephen L. Bartlett of Boston declared that the present rates on cocoas and chocolates would prohibit all importations. The Underwood tariff on unsweetened cocoa powder is eight per cent while the bean is on the free list and the finished produce is eight per cent. The Fordney bill pro-

poses a rate of 17½ per cent. Mr. Bartlett proposed a rate on unsweetened cocoa powder, valued at less than 20 cents a pound, of a cent a pound; and above 20 cents a pound, of three cents a pound. That is about the present rate. He declared that it is impossible in the import trade to compete with the cheap cocoa powders imported into this country, but they can compete on the better grades and are willing to pay the Underwood assessment.

Ralph D. Ward, representing the Ward Baking Company, New York, urged that there be no increase in the tariff on frozen eggs. He told the senators that his company maintains manufacturing plants at New York, Brooklyn, Newark, Pittsburg, Cleveland, Columbus, Baltimore, and Chicago, producing one million loaves of bread and one-half million cakes a day.

The frozen eggs used in the baking trade come from China. The egg producers have asked for an increase upon the present rate of from two to eight cents per pound. Mr. Ward believes that this is excessive and uncalled for, because the frozen eggs imported from China are not in competition with the shell eggs or frozen eggs handled in this country. The frozen egg industry of China is operated by Americans—it is an American enterprise in China, promoted largely through the suggestion and co-operation of his company. One pound of frozen eggs is the equivalent to one dozen shell eggs.

Says Proposed Rates Hurt Frozen Egg Business

"The American price is about the price of Chinese eggs," stated Mr. Ward, "and the addition of this tariff to the cost of Chinese eggs would practically wipe out China as a source of supply and would not be of benefit to the American market, because that will be absorbed by the packers of the United States. This is proved by the fact that domestic and foreign eggs are kept at a price level. The eggs that come in this country from China are just as perfect as American eggs, perhaps a trifle better, because they are packed from whole fresh eggs, while the American frozen eggs come largely from eggs slightly cracked. The packing houses lay aside these slightly cracked, so that, if anything, imported eggs are a little better, and you have a little more assurance that they are in perfect condition for the cake manufacturer. Through the tremendous volume that we are able to handle, we are able to give the public a cost price which makes it very attractive and so has created an industry which is well worth recognition."

The Louisiana cane and the Michigan beet sugar producers are asking for a rate of 2½ cents per pound on 96 raws against Cuba. The domestic cane producers say they are not particularly interested in competition from other countries because Cuba dominates the business of the United States over and above the sale of the domestic product.

They stated that they could get along under a two cent rate against Cuba, which would mean that the present 20 per cent differential would be done away with. The beet men stated that the average cost of production of beet sugar in sixteen of the larger plants was \$5.09 per hundred pounds.

Witnesses claimed that the only effect of a high protective tariff on sugar would be to keep Cuba from monopolizing the American market. Congress, they said, must decide whether the market shall be given over to Cuba or whether the United States should continue to produce one-half of its requirements of four million tons per annum.

A rate of 1½ cents per pound on edible blueberries was asked by Edwin M. Frye of Harrington, Maine. He also urged that the committee provide a rate of 25 per cent ad valorem on canned blueberries. In Washington County, Maine, he said, in 1920, the product of the eleven factories operating there totalled \$1,200,000. In addition large quantities of the berries in small boxes were shipped to various markets.

Unless adequate protection is provided, according to Mr. Frye, the blueberry pickers and canners of Maine will be unable to compete with Canada. The committee was very much interested to learn also that in 1909, No. 10 blueberries sold at \$4.50 per dozen and in 1920, at \$9.50 per dozen.

Delapenha Pleads For American Valuation

Says Preservers Would Prevent Dangers of Foreign Competition by Retaining Provisions in Pending Fordney Bill

RESOLUTIONS urging the inclusion in the pending tariff bill of the American valuation plan were adopted January 30, at a special tariff meeting of the National Association of Manufacturers in Washington.

The meeting was called by J. E. Edgerton, president of the organization, for the purpose of formulating and submitting to the President and to Congress the opinions of the leading manufacturers of the country on this important question. During the meeting special committees visited the White House, where they were received by the President; conferred with members of Congress and appeared before the Senate finance committee.

Manufacturers in all lines were represented at the meeting, many of them submitting their views to the gathering. Among those who took a prominent part in the proceedings was R. W. Delapenha of New York representing the National Preservers' and Fruit Products Association. Expressing the opinion that it would be wasting time to attempt to convince those present of the merits of the American valuation plan, Mr. Delapenha confined his remarks to the constructive features of this method of raising duties.

"It seems absurd for an ordinary individual to believe that in the painstaking efforts and scientific research of the men engaged in framing our laws, they would have embodied American valuation in the tariff bill, now before Congress, if it was not primarily intended to bring with it constructive legislation," said Mr. Delapenha. "It would make no difference whatever whether there were depreciated currencies in Europe or not, whether we were enjoying prosperity in the United States or not, it is a great step forward to correct the abuses which have crept in the administration of our tariff laws throughout the United States.

Preservers Favor American Valuation

"Our opponents are using arguments—they are escape-ments, not arguments. At our convention in Louisville on January 16 and 17, the National Preservers' and Fruit Products Association, assembled there, passed a resolution unanimously in favor of the American valuation. On the 17th, these resolutions came up for adoption, this particular resolution did among others. Like a bolt from a clear sky a gentleman prominent in business affairs in Louisville objected to it. As I was the sponsor of the resolution, I immediately arose and said 'Mr. So and So, it would be very enlightening to the association at this time if you will debate the subject with me or if you will tell me why you are opposed to it.' He said, 'Well, I would rather not,' and the resolution was carried.

"After the meeting adjourned, I engaged this gentleman in conversation, and I said, 'You are a very intelligent man; you are at the head of an industry out here, and I believe I have some measure of intelligence (at least I have an open mind); perhaps you will give me the reason that you are opposed to American valuation.' So his answer was 'Well,' he said, 'Europe owes us a lot of money and if we are ever going to get paid we must buy their goods.' 'Well,' I said, 'that is very beautiful to hold up, but suppose you were a manufacturer of pocket knives? Suppose your father had made that business, and a sacred trust was handed down to you to carry it on for the benefit of the children, you being the oldest son, and suppose that business was threatened with complete and absolute extinction because of the condition which had arisen in Europe and which made it impossible for you to compete, even if you did not pay your workers anything at all.' He said, 'That would be altogether different.' I said, 'Well, there is no

use arguing with you, sir, because every gentleman who I have asked to argue the question with me usually answers in the same uncertain way.'

"Gentlemen, I read in the New York Times this morning that for the first time since the Armistice the excess of German exports over imports was nine hundred million marks, and that is just the beginning of it.

"I will go a step further and say to you that we will have the hardest kind of effort to keep our industries going with American valuation, and I believe that the United States Government should go beyond that, and, upon investigation, whenever any industry is threatened in America, that there should be an absolute embargo put on the article that threatens the extinction of that American industry.

The resolution adopted by the meeting was in the nature of a memorial to the President and to Congress, as follows:

Great Economic Crisis

"Our country is today in the grip of the greatest economic crisis of our time. Great numbers of men and women are unemployed. Farmers are beseeching Congress to alleviate the difficulties with which they are confronted. In all parts of the country producers are being obliged to discontinue or greatly curtail production.

"The utmost determination to surmount the existing difficulties by energy, efficiency and thrift, are unavailing in the face of a foreign economic invasion such as our country has never before witnessed. Farm products and manufactured articles are being dumped upon our market from many countries whose depreciated currencies and depreciated economic standards have greatly lowered former low production cost.

"The present basis Revenue Act of 1919 was avowedly designed by its authors as merely a revenue measure from which, so far as possible, the element of protection to American producers was entirely eliminated. The depreciation of foreign currencies, since that law was enacted, has greatly reduced its effectiveness even for revenue purposes; and the vastly increased quantity of imports, made possible by its low rates of duty and uncertain basis of valuations for dutiable purposes, are displacing corresponding quantities of domestic production, thereby intensifying the evils of unemployment and consequent restriction of mercantile business.

Prompt Return to Protection Urged

"If the hardships of unemployment and its attendant evils are to be removed, it is essential that there shall be a prompt return to a policy of protection for American labor on the farm, in the mine, and in the factory; and to make such protection effective under the new and altogether unprecedented economic conditions now prevailing in competing countries, it is imperative that the American valuation method of assessing ad valorem duties shall be incorporated as a basic administrative principle of the tariff act, as by so doing there will be placed on the statute books an operative enforceable law as against the present inoperative and non-enforceable law.

"This convention, representative of the great industrial activities of the country, joins with those innumerable organizations which have already spoken in approval of the American valuation plan of assessing the duties on imports; and in urging immediate revision of the tariff laws for the purpose of providing needed protection for the labor of manufacture, agriculture and mining.

"We respectfully urge that the provisions in the pending Fordney tariff bill be retained that provide for American valuation by American appraisers in America."

Referee Reports on Milk Compounds

Statement of Facts Presented to Wisconsin Supreme Court in Case to Determine Law's Constitutionality

FINDINGS of fact upon which constitutionality of the filled milk law enacted by the 1921 legislature will largely depend were reported to the Wisconsin Supreme Court on January 24, by Judge A. G. Zimmerman, special referee. Arguments on the law involved in this action of the Carnation Milk Products Company, and the Hebe Company of Chicago, against the statute which prohibits manufacture or sale of the product in Wisconsin probably will be set by the court for its March assignment.

Judge Zimmerman determined from the 1,700 pages of testimony developed at the hearing on the case before him November 17 to December 1, that compounds made from skimmed milk and cocoanut oil "are not harmful or deleterious as a food either for adults or children, but are not desirable as a complete substitute for milk because of the lower vitamin content."

The distinction in food values between whole milk and milk compounds, the judge found, to lie in the fact that "the compound appears to be deficient in vitamin A," but, he added, "a varied diet such as is used by the American people generally supplies ample vitamins, and the amount of any particular vitamin necessary for proper growth is not known."

"Chemists have apparently demonstrated," he said, "that in addition to protein, caloric volume and salts necessary for a well-balanced diet, there is required an additional 'productive substance' for recent discovery—vitamins."

"The milk compound contains a sufficiency of all other elements, except one class of vitamins required to make a food complete as well as wholesome." He concluded that the compound is a wholesome food product in the sense that bread, potatoes, or lean meats, or cereals, or fruits are wholesome foods, each for their uses and purposes and that of a milk compound is especially in cooking and baking."

Referring to testimony introduced in support of the charge of fraud in the sale of milk compounds, Judge Zimmerman found that between January, 1918, and September, 1921, there have appeared in Wisconsin newspapers about 340 advertisements by about 34 retail grocers, in which milk compounds were listed as "milk" or a "milk compound" or a "compound of milk."

"The milk company itself does not appear to have advertised the compound as 'milk or milk compound' or urged others to do so," he said.

"There appears to be about 63 instances where retail grocers in Wisconsin have sold milk compounds as milk or evaporated milk although ordinarily as pointed out the compounds were asked for and sold by their trade names."

Judge Zimmerman found that since March, 1920, the company has on its labels "directed that the compound is not to be used as a substitute for milk except so far as it may have inferentially done so by prescribing the use of the compound in its receipts advertised for cooking and baking. The company sells and requests wholesalers and retailers to sell the product as a compound for skimmed milk and vegetable fat."

The judge found no complaints have been made of the sale of the product to the dairy and food department and sales of the compound as evaporated milk had been made to employes or connections of the departments collecting evidence for use at legislative hearings and at the present trial.

In addition Judge Zimmerman found that all three vitamins "are essential to growth and health, and the lack of normal growth."

The referee's report follows in full:

REPORT OF A. G. ZIMMERMAN, Referee herein

I, A. G. Zimmerman, referee herein,—pursuant to an order made by the Supreme Court herewith returned, directing me as referee "to take the evidence offered by the parties and report the same to" the court with my "conclusions of fact

thereon,"—herewith report the testimony taken and proceedings had in said cause before me November 17 to December 1, 1921, inclusive, and finally on January 23, 1922, the record and hearing of such proceedings in full being herewith submitted.

Referee's Findings of Fact

I further report that after having received plaintiffs' request and defendant's request for detailed findings respectively submitted to me by them December 8, 1921, as herewith submitted, and after having examined the same in connection with the record of the testimony, all such requested findings of both plaintiff and defendant are refused certiam and in toto, except as included in the following paragraphs numbered 1 to 27 inclusive, which I herewith report and find as my completed FINDINGS OF FACT:

1. That the relator, the Carnation Milk Products Company, is a corporation organized under the laws of the state of Delaware with authority to manufacture evaporated milk and milk compound, with principal offices at Seattle and Chicago, and is duly licensed to transact business in the state of Wisconsin, including one at Oconomowoc and one at Jefferson, Wisconsin, and that the value of such two plants approximate \$650,000.

2. That the relator, The Hebe Company, is a corporation organized under the laws of the state of Washington, with offices at Seattle and Chicago, and is duly licensed to transact business in the state of Wisconsin.

3. That the Carnation Milk Products Company manufactures for sale evaporated milk at its plants in Wisconsin and elsewhere and that it also manufactures at its plants at Oconomowoc and Jefferson, the Hebe compound and sells the entire product of Hebe Company.

4. That The Hebe Company sells the Hebe compound to jobbers and wholesalers only; but its representatives take orders for the product from retailers, which orders are filled solely by the jobbers and wholesalers.

5. That "Hebe compound" designated also as "Hebe," is a compound consisting of about 92.2 per cent of skimmed milk and 7.8 per cent of vegetable fat consisting of pure highly refined cocoanut oil, and is similarly manufactured and is subjected to a similar evaporating process as evaporated milk. That the cost of manufacturing is about the same, except, that the cost of materials in Hebe is less. That the cost of the additional machinery and equipment employed in the manufacture of Hebe is approximately fifty thousand dollars in each of two plants.

6. That Hebe is packed in hermetically sealed cans of two sizes, known as "tall" containing one pound avoirdupois, and "baby" containing six ounces, and these cans are packed for shipment in cases holding forty-eight large cans and ninety-six small cans respectively. That each can has affixed to it a label, a sample of which, with the printed matter thereon, is attached to folio 12 of the complaint, and in each case is placed inside and on top of the cans, a printed notice, a sample of which is attached to folio 14 of the complaint; that such labels and printed notices, among other things, describe Hebe as a compound of evaporated skimmed milk and vegetable fat.

7. That there have been manufactured and shipped Hebe in Wisconsin as follows: In 1918, cases, 4,520; in 1919, cases 10,461; in 1920, cases 12,062; in 1921, to October 31, cases 6,616. And manufactured in Wisconsin and shipped in this state, and elsewhere in interstate commerce, in 1918, cases 563,353; in 1919, cases 725,921; in 1920, cases 739,101; and in 1921, to October 31, cases 413,526.

8. That the amount and cost of skimmed milk purchased and used in the manufacture of Hebe is as follows: in 1919—1,999,576 pounds at \$22,770.15; in 1920, 4,263,085 pounds at \$28,878.86; in 1921, to September 30, 3,604,509 pounds, at \$25,669.61. That there was purchased from the University of Wisconsin skimmed milk, in 1919, 89,084 pounds at \$779.35, and in 1920, 160,530 pounds at \$1,029.95. That additional skimmed milk required in the manufacture of Hebe was obtained by the purchase of whole milk from which all but one-tenth of one per cent of the butter fat was extracted out of which butter was manufactured and sold.

9. That the approximate average difference in prices at which Hebe and Carnation evaporated milk are sold, to jobbers and retailers is about \$1.25 per case less for Hebe, the difference being perhaps more than less; and sold by retailers to consumers Hebe, per can, from 1 to 3 cents less than Carnation, but sometimes compounds are sold at the same price as evaporated milk.

10. That the manufacture and sale of Hebe does not appear to have interfered competitively with the sale and increased sales of Carnation Evaporated milk in Wisconsin and elsewhere in interstate commerce. That Hebe has been manufactured and sold for about five and one-half years, and perhaps was the first generally sold compound of skimmed milk and vegetable oil on the market. That Carnation evaporated milk has been on the market about twenty years. That there are four or five other similar compounds made and sold in Wisconsin.

11. That by means of laboratory and other investigations and dietary experiments with animals especially, and particularly during the past dozen years or so, with variable results and changing conclusions from time to time as the investigations and experiments proceeded, chemistry specialists and dieticians have apparently demonstrated that, in addition to the long-established abundant protein, caloric volume and various salts necessary for a well-balanced diet to obtain proper nutrition and growth, there is required in the diet an additional element or "productive substance" of comparatively recent discovery, named in 1912—"vitamins." That these are vitamins A, B and C, and are also referred to as fat soluble A and water solubles B and C.

12. That the vitamins B and C apparently appear in sufficient and uncontroverted amounts, for the purposes of this case, in various ordinary foods, including whole milk, evaporated milk, and the Hebe compound.

13. That vitamin A, according to present information, is apparently most abundant in cod liver oil, after which milk and the butter-fat thereof and perhaps the yolk of eggs come next in amount contained therein; and that then other foods apparently containing lesser though considerable and advantageous amounts of vitamin A are—the vital organs of animals, as liver and kidneys, also fat meats, tomatoes, lettuce, onions; green vegetables, as cabbage, more particularly the outer green leaves thereof; spinach, also vegetable roots, as carrots and yellow turnips, parsnips, sweet potatoes; potatoes, perhaps; skimmed milk not more than one-half as much as in whole milk; butter, cheese, evaporated milk; and various other foods.

14. That there appears to be a deficiency or absence in demonstrable amounts of vitamin A in the following: lard, tallow, vegetable fats generally, as olive oil, cottonseed oil, coconut oil, lean meats, oleomargarine, cereals generally, bread, especially white; potatoes, perhaps; polished rice, sugar, and various other foods.

15. That the presence, absence, amount, and effect of vitamin A in different foods, seems to be more less variable, approximate and uncertain; that, for instance, one of the two perhaps most eminent scientists and authorities testifying, holds in effect that the vitamin A element in foods is quite limited and restricted and that, as a specific instance, so common a food as "potato" contains no demonstrable amount, while the other maintains that vitamin A is very widely distributed and that "potato" has an abundance thereof.

16. That the compound Hebe appears to be deficient, as compared with milk, in vitamin A, in that the coconut oil therein contains none and the skimmed milk therein contains not more than one-half as much as the whole milk from which it is obtained, and that the application of heat and oxidation in manufacturing may somewhat reduce the vitamin A content.

17. That the compound Hebe contains abundant protein, caloric volume, various salts and vitamins B and C—a sufficiency of all the other elements apparently required to make a food complete as well as wholesome.

18. That the compound Hebe is not harmful or deleterious as a food for human consumption either for adults or children; but that Hebe, though not in itself harmful, is not a desirable or proper food for use as a beverage for infants or as a complete substitute for milk, because of its lower vitamin A content.

19. That the compound Hebe is a wholesome food product for human consumption in the sense, for instance, that bread, potatoes, or lean meats, or cereals, or fruits, are wholesome foods, each for their various uses and purposes; and that the use and purpose of Hebe as a food is especially in cooking and baking for its additional or substitutional protein, caloric and shortening value.

20. That the compound Hebe is similar in taste, odor, appearance, consistency and manner of packing, to evaporated milk.

21. That the only complete and perfect food for infants appears to be mother's milk; that as such it does not appear to have been successfully imitated or a perfect substitute therefor obtained. That whole cow's milk, condensed milk, and evaporated milk, in the order named, appear to be the best substitutes for mother's milk, when substitutes are necessary, but each requires to be modified and supplemented to obtain satisfactory results. That skimmed milk is often fed for considerable periods to infants for special dietary reasons. That there does not appear to be any evidence that Hebe was ever fed to infants, except briefly in one or two instances.

22. That the Hebe company has in the past, and prior to March, 1920, in its advertising, labels, and otherwise, set forth to the public, as a proper use of the compound Hebe, its use in cereals and in coffee, aside from its uses in cooking and baking, and inferentially though not directly, its use in those particulars as a substitute for milk; but that since March, 1920, omitting "cereals" and since February, 1921, omitting "coffee," the Hebe company has, in its advertising, labels, and otherwise, set forth to the public the use of Hebe only in "cooking and baking," has affirmatively on its labels, since March, 1920, directed that it be not used as a substitute for milk for infants, and has not advertised or held out to the public its use as a substitute for milk, except so far as it may have inferentially done so by prescribing the use of Hebe in its recipes advertised for cooking and baking.

23. That between January, 1918, and September, 1921, there have appeared in Wisconsin newspapers about 340 advertisements by about 54 retail grocers, about one-half of the advertisements being in Superior newspapers and the remainder in Wisconsin Rapids, Green Bay, Madison and Marinette, in which advertisements Hebe and four other compounds were listed as a "milk" or a "milk compound," or a "compound of milk." That according to Polk's Gazetteer there are grocery, general, market, tea and coffee and department stores, that ordinarily handle canned goods, to the number of about 8,760 in Wisconsin, of which Superior has 136; Wisconsin Rapids, 23; Green Bay, 133; Madison, 136; and Marinette, 59; but not all grocery stores carry compounds.

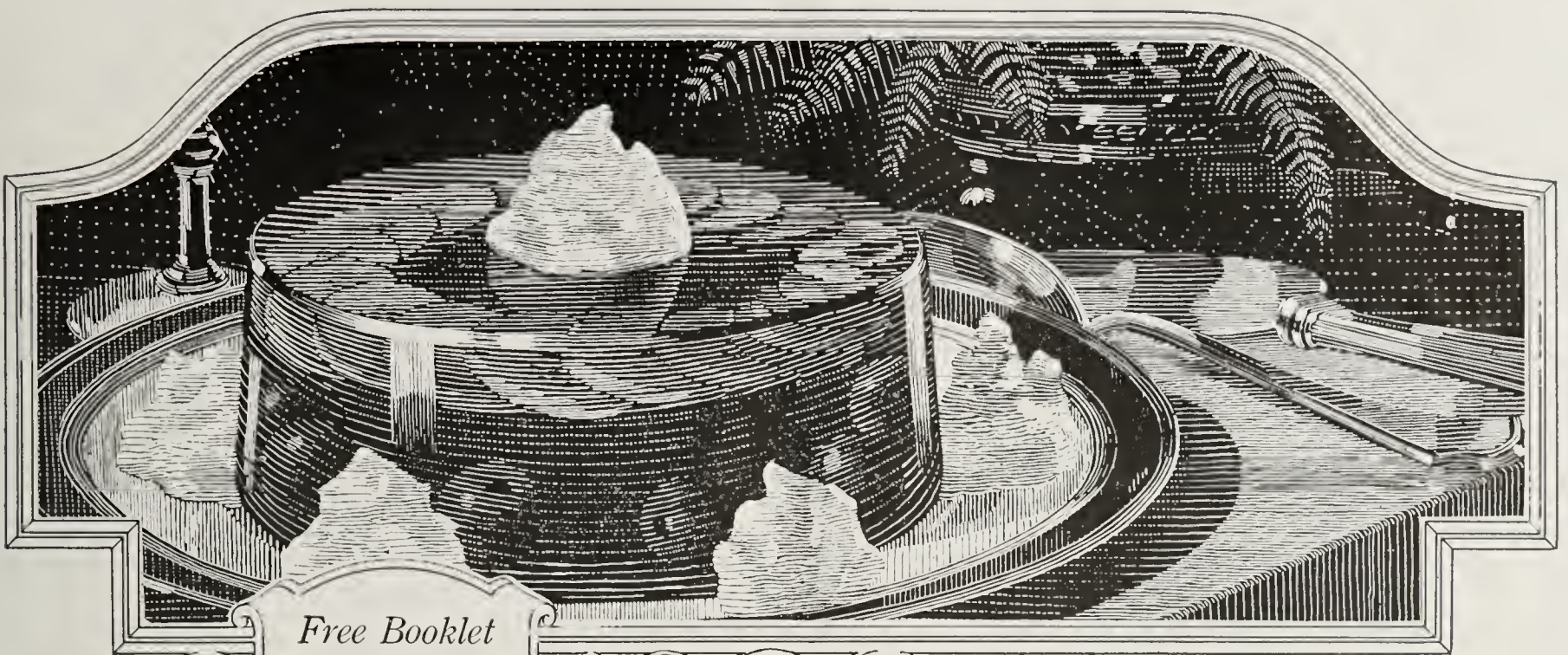
24. That the Hebe company does not appear to have itself advertised Hebe as "milk" or "milk compound," or authorized others so to do, or to have itself advertised in Wisconsin newspapers; but that the Hebe company has for several years past advertised extensively nationally through trade papers, magazines, and other journals and otherwise to the extent of perhaps \$250,000 per annum, and has established a good will and business as herein before specified.

25. That there appear to have been shown about 65 instances where retail grocers in Wisconsin have sold Hebe and other compounds as milk or evaporated milk, as follows: In Milwaukee, 17 stores, April 19 and 20, 1921; in Superior, 15 stores, November 8, 9 and 10, 1921; in Madison, 5 stores, April 19 and 20, October 22, and November 28, 1921; in Wausau, 4 stores, November 17, 1921; in Wisconsin Rapids, 1 store, November 16, 1921; in Marshfield, 2 stores, November 17, 1921; in Ellison Bay, 1 store, May, 1921; in Rhinelander, 3 stores, November 10 and 11, 1920; in Peynette, 1 store, November 10, 1921; in Kenosha, 2 stores, April 20, 1921; in Racine, 1 store, April 20, 1921; in West Allis, 3 stores, April 19, 1921; in Green Bay, 6 stores, April 27 and 28, 1921; in Manitowoc, 1 store, April 28, 1921; in La Crosse, 2 stores, April 19, May 10, 1920; in Spooner, 1 store, November 7, 1921. That there are general, retail grocery stores, markets and tea and coffee stores, according to Polk's Gazetteer, that ordinarily handle canned goods in the cities named as follows: Milwaukee, 2,047; Superior, 136; Madison, 138; Wausau, 78; Wisconsin Rapids, 23; Marshfield, 22; Ellison Bay, 4; Rhinelander, 23; Peynette, 4; Kenosha, 157; Racine, 208; West Allis, 63; Green Bay, 133; Manitowoc, 62; La Crosse, 127; Spooner, 12. That ordinarily the compound is asked for and sold by its trade name "Hebe." That evaporated milks are also ordinarily sold by their trade names.

26. In addition to the foregoing twenty-five general finding deemed to cover the general situation, I find certain isolated facts that may be considered pertinent, being modified excerpts and condensations of findings requested by plaintiffs that may not already sufficiently appear, as follows:

(a) That Hebe contains 27.15 per cent of total solids of which 28.8 per cent is coconut fat, free from free fatty acids in amount about equal to the butter-fat extracted from the

(Continued on page 50)



Free Booklet

A Beautiful
Jell-O Book will
be Sent Free to
any address
upon request

YOU get real satisfaction out of a dish of Jell-O. It gives the right touch to a meal,—just light enough and just sweet enough.

No matter how heavily you may have eaten, you always feel the need of a dessert at the end, otherwise the meal seems incomplete. Jell-O fills that need exactly.

The American Offices and Factory of The Genesee Pure Food Company are at Le Roy, New York, in the famous Genesee Valley.

The Offices and Factory of The Genesee Pure Food Company of Canada, Ltd., are at Bridgeburg, Ontario, on the Niagara.

JELL-O

America's Most Famous Dessert



(b) That Hebe is manufactured under letters patent, is never sold in bulk and complies with all federal statutes and regulations.

(c) That skimmed milk is a wholesome and nutritious food product, also coconut fat, with a higher caloric value than butter-fat and as easily digested. That coconut fat is used in nut margarin and in the baker's and confectioner's trade. That the nutritional and caloric values of the skimmed milk and of the coconut fat used are retained in Hebe.

(d) That the Hebe company sells and requests wholesalers and retailers to sell Hebe as a compound of skimmed milk and vegetable fat.

(e) That no complaints to the Dairy and Food department appear to have been made of the sale of Hebe or other compound as evaporated milk. That the sales as hereinbefore found were to employees or connections of the department collecting evidence for use at legislative hearings and at the trial herein; that there was evidence tending to show that the methods employed in such purchases were not always fair to the seller, and that the buyer was not misled.

(f) That but three prosecutions have been instituted for the sale of a compound as milk, each sale being to an inspector. That there is no evidence of any such sale being made to a consumer as such.

(g) That condensed milk is advertised and sold in Wisconsin for food for infants. That "Choconilla," a compound of evaporated skimmed milk and cocoa is permissibly manufactured and sold in Wisconsin, as are sweetened skimmed condensed milk, and powdered skimmed milk.

(h) That a varied diet such as is used by the American people generally supplies ample vitamins. That the amount of any particular vitamin necessary for proper growth is not known and that no particular vitamin can properly be called the "growth vitamin."

27. In addition to the foregoing findings, I find certain isolated facts that may be considered pertinent, being modified excerpts and condensations of findings requested by the defendant that may not already sufficiently appear, as follows:

(a) That all three vitamins are essential to growth and health, and in addition, experiments with animals indicate that each vitamin has a specific function in preventing a deficiency disease. That entire lack of vitamin A in the diet appears to produce an eye disease known as xerophthalmia; of vitamin B, beriberi or polynouritis; of vitamin C, scurvy. That the lack of any vitamin appears to cause undernourishment, and in the young, failure of normal growth.

(b) That the Hebe Company in some of its advertisements, including a recipe book containing about thirty-five recipes, prescribes the use of Hebe in the recipes, wherein standard cook books in similar recipes quite commonly prescribe the use of milk.

(c) That it is a common custom for retail grocers to place their evaporated milks on the same or neighboring shelves, with the various brands separately placed, and Hebe when handled usually is likewise so placed with them, and other canned goods in the same neighborhood.

(d) That four other compounds, of evaporated skimmed milk and coconut oil,—“Silver Key,” “Majal,” “Nutro,” and “Enzo,”—are manufactured and sold in Wisconsin, and two others,—“Carolene” and “Nyko,”—manufactured elsewhere, are sold in Wisconsin. That they have different labels with some varying more or less objectionable advertising thereon. All of which is respectfully submitted.

January 23, 1922.

A. C. ZIMMERMAN,
Referee.

NEWS OF THE FOOD TRADES

Beech-Nut Decision Upholds Right of Resale

Charles Wesley Dunn Explains Significance of Recent Supreme Court Ruling for Grocers and Manufacturers

The right of a food manufacturer simply to suggest fair resale prices and simply to refuse sales to dealers who do not charge them, was squarely upheld in the Beech-Nut decision by the Supreme Court, according to Charles Wesley Dunn, that organization's counsel, who recently issued a comprehensive interpretation of the court's decision. Mr. Dunn sees the possibility, however, of much future litigation on the subject of the refusal-to-sell policy, as a result of the decision.

"The Beech-Nut case will take its place beside the Miles and Colgate cases," said Mr. Dunn, "as one of the three leading and landmark cases in the historical development of the Federal general law on resale price maintenance, aside from any question of the construction and application of the patent and copyright laws.

Colgate Case Principle Affirmed

"In the Beech-Nut case our highest court affirms the principle announced in the Colgate case and defines the limitations of its application. The Miles case establishes that a manufacturer cannot consistently with the prohibitions against restraint of trade and monopoly contained in the Sherman act sell his products and yet lawfully by contract or agreement fix a price at which they shall afterward be sold. And such unlawful agreements may be either express or implied from a course of dealing or other circumstances," as stated in the Schrader case.

"The Colgate case establishes that the Sherman act does not deprive a manufac-

turer or trader, engaged in an entirely private business and independently exercising his own discretion without any purpose to create or maintain a monopoly, of the right simply to refuse to sell and to announce in advance the circumstances under which he will refuse to sell, and in the exercise of that right a manufacturer may refuse to sell his products to dealers who do not charge suggested prices.

"But, as pointed out in the Beech-Nut case, a manufacturer or trader may not, consistently with that act, go beyond the exercise of this right of refusal and by contracts or combinations, express or implied, unduly hinder or obstruct the free and natural flow of commerce in the channels of interstate trade.

Manufacturer May Not Use Methods Tending to Monopoly

"The Beech-Nut case establishes that the supplemental Federal Trade Commission act likewise does not deprive a manufacturer or trader of the right simply to refuse to sell, asserted under the general circumstances stated, and in the exercise of that right a manufacturer may, as held in the Colgate case, refuse to sell his products to dealers who do not charge suggested prices. But a manufacturer or trader may not, consistently with that act, go beyond a mere refusal to sell and use methods of competition which have a dangerous tendency unduly to hinder competition or create monopoly.

"And a manufacturer uses methods of competition which have a dangerous ten-

dency unduly to hinder competition if they involve co-operation with his dealers to prevent others from obtaining his products at less than stated prices.

Other Points Settled

"As a result of the decisions in the Colgate and Beech-Nut cases it is settled that a manufacturer, independently exercising his own discretion without any purpose to create or maintain a monopoly, has the clear right simply to suggest resale prices and also to pursue the announced policy of simply declining sales to dealers who do not charge suggested prices, provided its exercise is subject to the limitations defined in the modified order directed to be entered in the latter case, which right is denied by neither the Sherman nor Trade Commission act. The Clayton act does not, of course, apply.

"Following and supplementing the foregoing declaration and to avoid all possible misunderstanding of it, if perchance it is susceptible of misunderstanding, we feel it our duty to utter a solemn word of warning based upon four years and more of continuous and intense experience in the defense of the Colgate and Beech-Nut cases culminating in the recent decision in the last-named case, and many years of almost daily experience in the practical application of the principles hitherto announced by the Supreme Court in the so-called resale price maintenance cases," that the pursuit of such policy must be rigidly, unremittingly and intelligently controlled to the end that it may be always and strictly confined to the narrow channel of its lawful course. Otherwise there is the gravest danger of circumstances attending its pursuit which transcend its lawful limitations.

Dealers Cautioned

"And we caution dealers to be equally careful, since if they are parties to an un-

(Continued on page 52)

E. PRITCHARD

Packer and Manufacturer
of the Finest

"EDDYS"

BRAND

Canned Food, Jellies, Preserves
Plum Pudding, Sauces, Table Delicacies
and

PRIDE OF THE FARM

TOMATO CATSUP

Bridgeton, New Jersey

and

331 Spring Street, New York, N. Y.

Quality CARTONS

*For Food
Manufacturers*

WE operate one of the most
modern paper mills and
folding box plants in the Mid-
dle West. No order too large
for our facilities.

SUTHERLAND PAPER COMPANY

Lincoln Ave., Kalamazoo, Mich.

NEW PROCESS

Non-Corrosive TUBING

For Every Need of the Food Manufacturer

Reduce Replacements—Add Longer Life to Your
Machinery and Maintain Uninterrupted Produc-
tion. Improve the Quality of Your Product.
Solid Monel or Nickel Tubes, or Steel Tubes
Coated With Chemical Resistant Metals.

THE MOHEGAN TUBE COMPANY

314 SCOTT AVE.

BROOKLYN, N. Y.

The Right to Sell Hops

Hops are a legitimate farm product that every-
one has the indisputable right to grow and sell.

It's no more unlawful for you to sell Hops than
to sell sugar.

Sample Copies—

We shall appreciate having you send us
the names of any friends or business asso-
ciates who would be interested in seeing a
sample copy of The American Food Journal,
mailed with our compliments.

THE AMERICAN FOOD JOURNAL

Floral Park, New York
BUSINESS and EDITORIAL OFFICES
25 East Twenty-Sixth Street
New York City

E. Clemens Horst Co.

235 Pine St.
San Francisco

128 North Wells St.
Chicago, Ill.

39 Cortlandt St.
New York, N. Y.

Packers of

GOLD MEDAL, THREE STAR and ROSE
Brands Hops in PACKAGES—also Hops in
BALES. LARGEST HOP GROWERS IN
THE WORLD.

lawful combination to fix resale prices, they are equally liable to the penalty.

It is unnecessary to add, in conclusion, that the cases under consideration have no application whatever to merchandising conduct, not involving resale prices. The right of a manufacturer or trader to refuse to sell for any other or no reason likewise remains complete and unqualified, as hitherto, provided it is independently exercised in the course of a private business free from unlawful monopoly.

Much Litigation Ahead

"The future promises much litigation revolving around the exercise of the simple refusal-to-sell policy. Whatever else is decided we may confidently anticipate the maintenance of the legal integrity of the right simply to suggest fair resale prices and to decline sales to dealers who do not charge them, provided that right is independently asserted without any purpose to create or maintain an unlawful monopoly. The attention of the court will be directed to the circumstances attending the exercise of that right and transcending its lawful limitations."

Macaroni Men Organize Packaged Goods Association

The Association of Package Macaroni Manufacturers have organized an association for the promotion and encouragement of the use of packaged macaroni goods. Through the efforts of this association, the manufacturers will attempt to indicate to the wholesalers and the dealers the advantages of handling their product. The association will endeavor to show that the packaged article is not only a superior article but will lead to the sale of many other products which are sold by the grocer such as cheese, tomato sauce and other products. To date, the association is composed of the following members: The Birmingham Macaroni Company, Birmingham, Ala.; the Cremette Company, Chicago, Ill.; Crescent Macaroni and Cracker Company, Davenport, Iowa; Fortune Products Company, Chicago, Ill.; Foulds Milling Company, Chicago, Ill.; Gooch Food Products Company, Lincoln, Neb.; Huron Milling Company, Harbor Beach, Mich.; Minnesota Macaroni Company, St. Paul, Minn.; Peter Rossi and Sons, Omaha, Neb.; Skinner Manufacturing Company, Panama, Neb.; Southern Macaroni Company, Amite, Louisiana; Tharinger Macaroni Company, Milwaukee, Wis. Lloyd Skinner is chairman and F. W. Foulds is chairman of the executive committee.

Dr. Frear, Noted Chemist, Dies

Dr. William A. Frear, one of the most prominent chemists in the United States and for thirty-seven years vice-director of the Pennsylvania Agricultural Experiment Station at State College, Pa., died of apoplexy January 9.

Dr. Frear was widely known to canners and other food manufacturers throughout the country for his long connection with the pure food movement and, on account of being chairman of the Federal Food Standards Committee, which has been working for several years past on standards for canned foods.

Dr. Frear was sixty-one years of age.

His place on the Standards Committee has since been taken by W. W. Skinner.

Federal Court Lifts Ban on Sweet Cider

Manufacturers Win a Victory in Contest Over Provisions of the Volstead Prohibition Enforcement Act.

The United States District Court at New York in a recent decision holds in effect that the manufacture and sale of sweet cider is not a violation of the Volstead Act, even though the beverage may subsequently develop an alcoholic content of more than one-half of one per cent.

More than a year ago suits were instituted in the United States District Court for the Southern District of New York, by the Hildick Apple Juice Company, Inc., and the Duffy-Mott Company, Inc., against the Prohibition Commissioner and others. The plaintiffs were manufacturing preserved sweet cider, but were unable to obtain a permit under the Prohibition Act and the regulations, because they could not guarantee the cider would contain less than one-half of one per cent of alcohol by volume until it was consumed.

The original suits in equity to compel Charles R. O'Connor, then Federal Prohibition Director, to issue permits for manufacture, transportation and sale, were dismissed by Federal Judge John C. Knox, on the ground that the United States Court would take no jurisdiction until the Commissioner of Internal Revenue had passed upon the question as to whether preserved sweet cider containing one-half of one per cent of alcohol was intoxicating.

The Government moved last summer for the dismissal of the action, which was decided in favor of the plaintiff. At that time Justice Augustus N. Hand heard the argument and refused to grant the motion but allowed the Government to file an answer.

The case finally came up, at the Government's request, before Justice Learned Hand after it had been put over several times. The American Cider and Vinegar Manufacturers' Association was represented by Mr. A. S. Gilbert, of Gilbert & Gilbert, New York, who was assisted by Senator Armstrong, the general counsel of the association. Major John Holly Clark, Jr., argued the case for the Government.

The manufacturers proposed to preserve the cider by the use of benzoate of soda. They took the position that as the Volstead Act specifically exempts "vinegar and preserved sweet cider" the presumption was that the law meant that preserved sweet cider could be sold, although it did contain more than one-half of one per cent of alcohol, if it was not intoxicating. It was contended by counsel that cider thus preserved never became intoxicating, for as the alcoholic content rises the cider becomes unpalatable. Although cider thus treated may develop as high as two per cent alcohol, it is unfit for beverage purposes, the court was told.

Justice Hand gave an oral decision from the bench, directing the Federal Prohibition Director to issue the necessary permits to manufacture cider as were sought by the plaintiffs. In rendering his decision, Justice Hand said in part:

"The question simply comes down to this: Does the phrase 'preserved sweet cider' in the statute include apple juice which is preserved temporarily by the infusion of benzoate of soda? I really think, in view of all the evidence here, it is not too much to say that there is not the least shadow of a doubt that the phrase does include this

kind of sweet cider. At the time the statute went into effect, that benzoated sweet cider included 90 per cent of all that was sold in the United States, and one of the witnesses thought it included 95 per cent. There has been no dispute of that. Indeed all cider sold in bulk is preserved by benzoate of soda, and when the statute used that phrase, of course, it would be almost preposterous to suppose that they meant to protect only one-tenth of the total output, and meant to outlaw nine-tenths, especially that which was the cheapest in its manufacture, and which presumably went to the body of the people at large. They were intent, rightly or wrongly, upon protecting an industry, and they meant, for reasons which no doubt were good, to allow the sale of sweet cider, as the market then knew it, the substance with which the market then was familiar under any names.

"It further appears in this case, although I do not think it was essential that it should,—what were the reasons which led them to make that exception. It appears that by no possibility can this substance become an intoxicant; long before it can become such, it is nauseous. Probably even a confirmed drunkard would not be able to get the exhilaration and the intoxication which he demands out of it; his body would scarcely tolerate enough to extract the alcohol from it which he craves. Therefore, it is quite clear why Congress thought they could safely give an unconditional permission to its sale. I do not mean by unconditional that the manufacturer must be unregulated; section 4 quite clearly shows that it is to be subject to regulations. But all such must fairly tend to one end alone; that there shall be sold only that substance which the trade has been accustomed to buy and sell as sweet cider. Without some regulations, the makers might sell hard cider, and that would be an intoxicant which the statute forbids. The scope of the Commissioners' power is confined to securing this end. The plaintiffs indeed concede that they are subject to the purposes of the statute, and those purposes protected the sale of benzoated sweet cider.

"For the reasons you may take a decree. I take it that you will be able to agree on the form, otherwise we will have to have a hearing on it."

Mason Honored by Boston Men

A special luncheon was given Fred Mason, president of the American Specialty Manufacturers' Association by the American Specialty Manufacturers' Representatives' Association of Boston at the Boston City Club, January 6.

The attendance at this luncheon was the largest in the history of the Boston Association, it is said. Vice-President F. C. Wurtz presided and with him at the head table were Mr. Mason, George D. Moulton, president of the Boston Association; Mr. Edwards of the Diamond Match Company, Boston; Frank F. Barrows of the Kellogg Toasted Corn Flake Company; the president of the American Specialty Manufacturers' Representatives' Association of New York, and F. W. Tucker of the Stickney & Poor Spice Company, secretary of the association.

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MARCH 1922 UNIVERSITY OF ILLINOIS LIBRARY MAR 7 1922

The American Food Journal

The National Magazine of the Food Trades



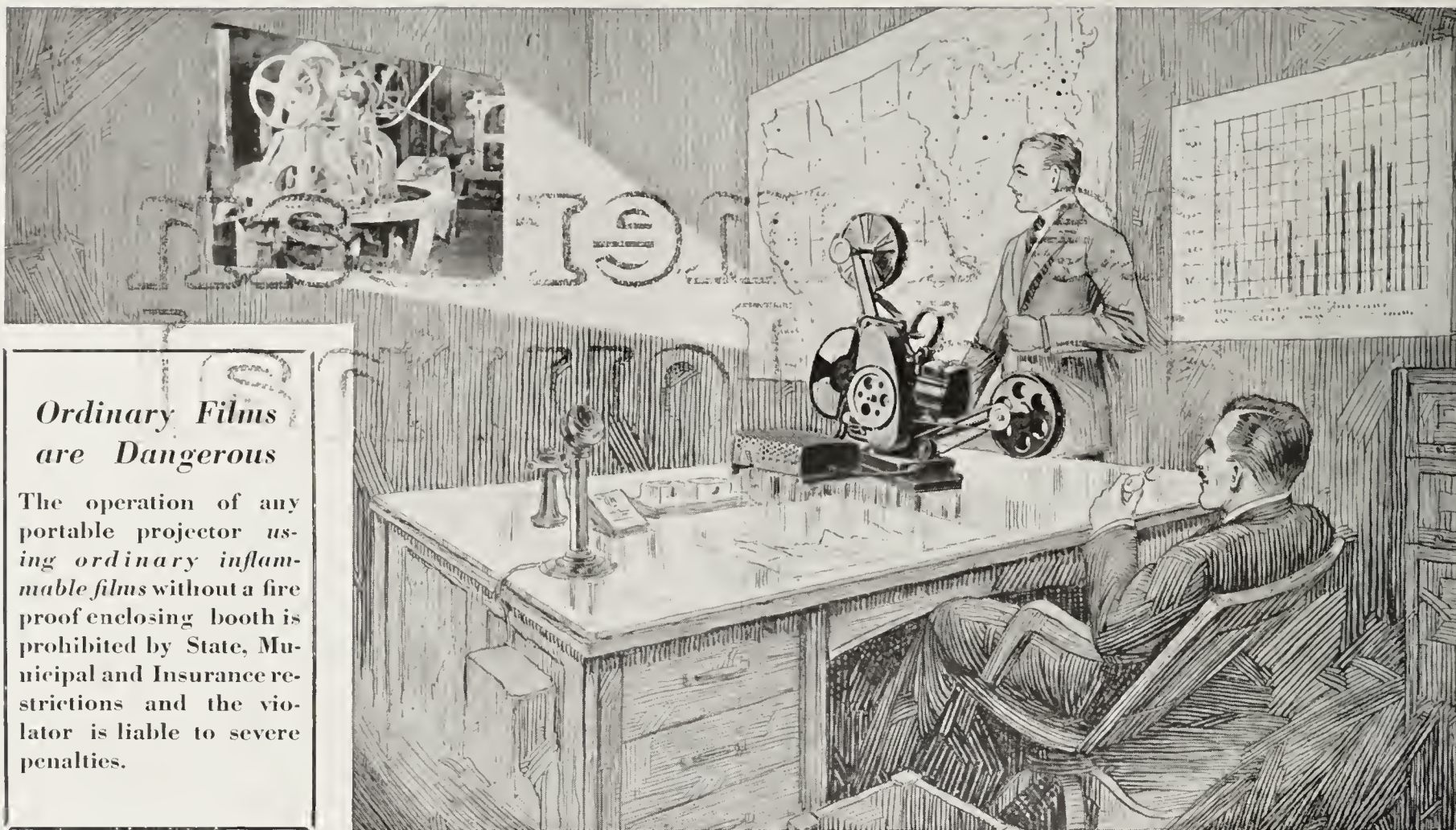
Cleanliness in Packing Brick Figs an Essential Requirement of Up-to-Date Plants—See page 7

Other Articles in This Issue:

Some Precautions in Canning Process, By W. D. Bigelow

Policy of Chain Stores Defended, By Harry L. Jones

Use of Pectin in Jams and Jellies, By H. S. Paine



Ordinary Films are Dangerous

The operation of any portable projector using ordinary inflammable films without a fire proof enclosing booth is prohibited by State, Municipal and Insurance restrictions and the violator is liable to severe penalties.

THE NEW PREMIER *Pathéscope* Flickerless "SAFETY STANDARD" Motion Picture Projector

Selling with Motion Pictures

Showing beats telling!

Nothing you can say about the quality of your goods or what they will do, is half so compelling—so convincing—as a visual demonstration of how they are made and used.

Motion pictures of your product present no mere claims to be argued down. They are both claim and proof combined. They leave no room for doubt. They compel belief.

Sales, Advertising and Sales Promotion Managers of many of the most progressive concerns in the country are using motion pictures and New Premier Pathéscopes in strong educational work and intensive development of specific sales territories.

The Pathéscope Company recently made for E. A. Stevenson & Co., Boonton, N. J., a motion picture film showing the complete history of the manufacture of "Spredit" (nut butter), for use among Domestic Science instructors and to give retail dealers first-hand information about the product.

A film made last year by the Pathéscope Company for Kirkman & Son,

Brooklyn, N. Y., has been shown already to over six million people. This company has now in daily operation twenty-five New Premier Pathéscopes and its motion picture activities constitute a very considerable portion of its sales promotion work.

The National Cash Register Company has twenty-eight Pathéscope projectors; the Economist Film Service, for its Department Store clients, has forty-five.

New Premier Pathéscopes have been used with eminent success, also by the Amer. Mutual Liability Insurance Co. Baldwin Locomotive Works Boston Woven Hose & Rubber Co. General Electric Company International Correspondence Schools International Mercantile Marine Mosler Safe Company National Biscuit Company United Drug Company and many others.

Many of these users selected the Pathéscope only after a careful investigation of, and sometimes unfortunate experiences with, other portable projectors. One Sales Promotion Man-

ager, who tried out various machines by projecting their pictures side by side with those of the Pathéscope, chose the latter as "all around most efficient," adding that "the biggest feature is the 'Safety Standard' film used in the Pathéscope. In many places, it is only because of this feature that we are permitted to show our film."

Only "Safety Standard" film is used in the Pathéscope. *It is safe.* The Underwriters' Laboratories, Inc., have set their Approval Label on every "Safety Standard" film and Pathéscope projector. No fire-proof booth or licensed operator is required.

Ordinary film is dangerous and should be used only in a fire-proof booth and by a licensed operator.

The New Premier Pathéscope can be operated by any of your men, any time, anywhere. It is so *exquisitely built* that its brilliant, flickerless pictures amaze expert critics. It operates on any electric light current, or from a storage battery. It weighs only 23 pounds and can be carried in a small suitcase.

Our Industrial Department is organized to render an efficient service to advertisers in the preparation of films. We made the most successful industrial films produced during 1921. We invite an opportunity to demonstrate the Pathéscope Film Service and to explain its place and function in your sales promotion program.

The Pathescope Co., of America, Inc.

Willard B. Cook, President

Suite 1850, Aeolian Hall

Agencies in Principal Cities

New York City



Volume XVII

The American Food Journal

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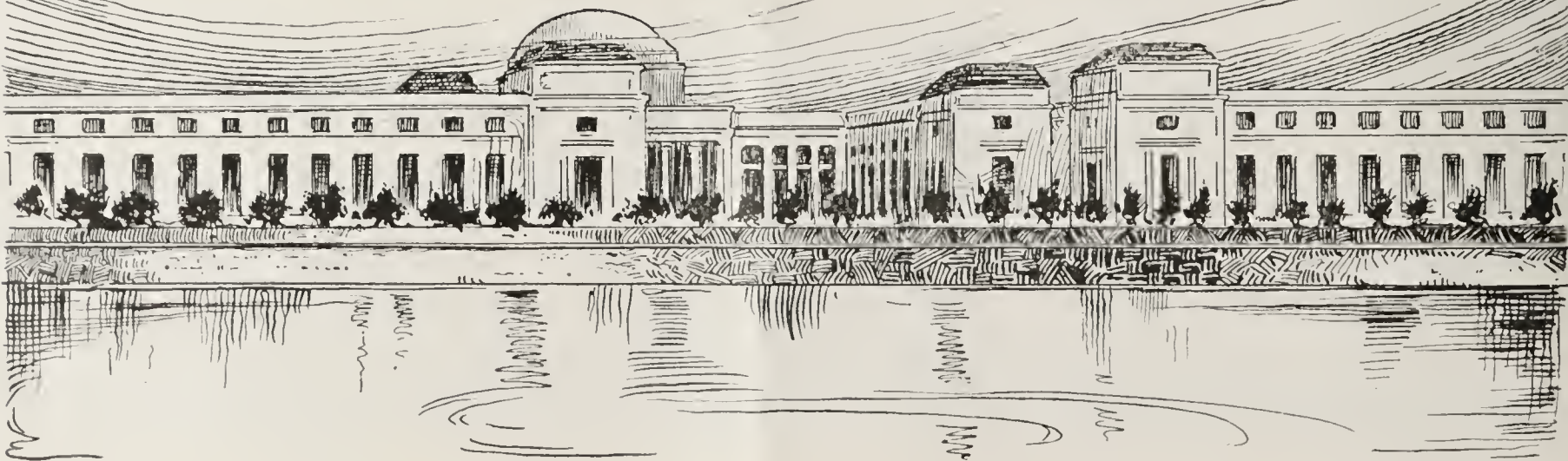
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Great Improvements in U. S. Fig Industry

California Growers Discover New Uses and Markets for Product and Help Materially to Increase its Popularity

By IRA J. CONDIT

Horticulturist, California Peach and Fig Growers, Fresno, Calif.

THE fig tree undoubtedly antedates the olive as a producer of food. The traditions of the Greeks carried its origin back to the remotest antiquity, and it was probably known to the people of the East before the cereals, wheat and barley. With little trouble of cultivation, it supplied their principal necessities, and offered, not an article of occasional luxury, but of constant food, whether in a fresh or dried state.

In Greece, when Lycurgus decreed that the Spartan men should dine in a common hall, flour, wine, cheese and figs were the principal contributions of each individual to the general stock. The Athenians considered figs an article of such necessity that their exportation from Attica was prohibited. At Rome the fig was carried next to the vine in the processions in honor of Bacchus, as the patron of plenty and joy; and Bacchus was supposed to have derived his corpulency and vigor, not from the vine, but from the fig. The fig receives considerable mention in biblical accounts. Cakes of figs were included in the presents of provisions by which the widow of Nabal appeased the wrath of David. In fact, the best blessings of Heaven, peace and security, were assigned to "every man under his own vine and fig tree."

Fig Districts

The original home of the fig tree is in the countries bordering the Mediterranean. The Smyrna district of Asia Minor has been noted for centuries for the quality of its dried figs and the Smyrna fig as produced near Smyrna and, for the past twenty years, in California, still maintains its rank as the standard of quality in dried figs. The dried figs produced in Greece, Italy, Spain and Portugal are good, but are not in the same class as Smyrna figs and do not command as high a market price. The quality of the Smyrna fig, or the Calimyrna, as it is called in California, is due to the presence of fertile seeds in the fruit, due to pollination or caprification by the small fig wasp, about which so much has been written. Other figs have seeds but they are hollow and infertile. The fertile Smyrna seeds lends a rich, nutty

flavor to both fresh and dried fruit which is unsurpassed.

California has been growing figs for over 150 years. The Black Mission fig, which was the first one introduced, is still a leading variety both for fresh and dried fruit. One grower says of it: "There is nothing wrong with the Mission fig except its color." The black color of the fresh and dried product is a disadvantage in marketing, especially in the East, where a light-colored fig has become known. This seems to be mainly a prejudice, however, which can undoubtedly be overcome when the excellent quality of the black fig becomes better known.

The White Adriatic was introduced into California in the fifties and has been widely planted as a sure and easy crop. Miles of the trees have been planted as borders around vineyards of table and raisin grapes and form a welcome source of revenue from the dried crop. In fact, the crops of White Adriatic figs have long been known as "mortgage lifters" in parts of the San Joaquin Valley where the trees do best. Almost four-fifths of the dried fig crop of California consists of White Adriatics, used mainly for cooking purposes, bakery products, fig bars and bricks of pressed figs.

The California growers, however, were not satisfied in allowing the people of Asia Minor to produce a better fig than they were producing. So in 1881 a large shipment of cuttings of the true Smyrna fig was brought in by the San Fran-

cisco "Bulletin," and distributed as premiums to subscribers. The trees thrived during the next few years, but in every case failed to set fruit on account of the absence of the fig wasp. Not until 1900 was this little insect successfully established in California fig orchards and during the intervening twenty years the California Smyrna fig industry has gradually been placed on a stable basis. The growers are putting out a product which for quality, cleanliness and attractiveness, is second to none.

Figs grow on deciduous trees which vary in size and shape



Ira J. Condit



Black Mission fig trees along borders, often grow to immense size. Compare the height of the trees with that of the man in the background.

according to the variety. The young trees are easily grown from cuttings planted in nursery rows where they are left for one or sometimes two years. After planting in orchard form the young trees grow rapidly, but do not as a rule, bear profitable crops until six or seven years of age. Trees eight to ten years old should produce over one-half ton of dried figs per acre; those ten to twelve years old, one ton per acre; those in full bearing, from two to two and one-half tons, dried, per acre.

The fruit ripens and partly dries on the tree. It drops naturally to the ground from which it is picked up frequently and hauled to the drying yard. Here it is spread on trays and dried in the sun for a short time, and then the trays are stacked so as to complete the process of drying in the shade. The quality of the dried fruit depends upon the condition of the trees in the orchard, the frequency of picking up, the length of time exposed to the direct sunshine, and to strict attention to various details on the part of the grower.

How Figs Are Graded and Packed

When delivered at the packing house, dried figs are graded into three grades: fancy, choice and standard, the grower being paid accordingly on the basis of grade.

Under present conditions the greatest demand for dried figs in package form is in November and December and especially for holiday trade. As many as 1,100 women are employed, in Fresno and vicinity, to pack figs during the two or three months preceding Christmas. After that time the demand for package goods seems to cease almost entirely and the figs are then mostly marketed in bulk for bakery purposes. In most seasons the largest percentage of the fig crop is marketed in bulk in 50 and 25 pound boxes.

The ordinary bricks of figs are put out in 10, 8, 6 and 4 ounce sizes, while whole or pulled figs are packed in fancy boxes containing from one to five pounds. Only extra fancy figs are packed as pulled figs. Such fruit is first washed or brushed thoroughly in warm water to render it perfectly clean and free from grit. Just before packing, the figs are softened in live steam for several minutes, after which they are manipulated or pulled into shape by the women packers. The brick figs are treated in the same way except that each fig is split open and flattened out.

Fancy packages of figs, raisins, and nuts are very popular for Christmas gifts and considerable quantities of fruit find market in this form.

Fig Products Increasing in Popularity

The fresh fig is a delicious fruit when properly matured. It is soft and perishable, however, and has not ordinarily been shipped in large quantities to distant markets. During the past season, several carloads of fresh figs were sent from California to New York and Chicago and marketed successfully. There is no doubt that improvements in packing, pre-cooling and shipping fresh figs will mean that this delicious fruit will soon be a common article on the fruit stands of both eastern and middle western markets.

Fresh figs are used in several other ways and in various high-class products. The most promising line of products at present is the canned fig put up in a light syrup. One hundred tons of Calimyrna figs were canned at one of the plants of the California Peach and Fig Growers, largely as an experiment. The success of this product seems also assured as it will provide an outlet for large quantities of fresh figs in sections of California where the dried figs are not so profitable.

Preserved figs have been on the market in small quantities for many years and have enjoyed an enviable reputation for high quality and delicacy. California has just recently begun to realize the possibilities of the preserved fig and thousands of acres of Kadota figs which are mainly valuable for preserving are being planted for this purpose. Another product, fig jam, has a very poor reputation in the Eastern market. While investigating fig markets in New York and Chicago in 1919, the writer was informed that "fig jam is dead." This condition is true largely because the jam has been made in the East from cull dried figs shipped from California and imported from Southern Europe and Asia. Fig jam made directly from ripe, luscious, fresh fruit the day it is picked from the tree is a product unexcelled in quality and flavor. The prejudice against fig jam will be hard to overcome, but the quality of the fresh fig product will make it a winner in all markets.

The marketing of dried figs in brick form has always been unsatisfactory. The figs in the package are not uniform in color or texture; they soon dry out and sugar up in warehouse or market; and the demand is not steady throughout the season. A manufactured product is being offered on the Pacific Coast this season which it is believed, will largely replace the brick figs and provide a steady market for dried figs throughout the year. This product is prepared from sun-dried figs ground up and rolled out in small sweetmeats which are uniform in quality and all ready to eat. Each "fig brownie" is wrapped in paper and five are than put into a carton which retails in any market for five cents. These 5-cent sellers have received wide favor during the past two months and 100 women are now engaged in their preparation and packing.

Figs contain two sugars in about equal proportions—glucose (dextrose) and levulose (fructose). Fresh figs contain from 70 to 75 per cent water and from 18 to 10 per cent total sugar. The dried fig naturally has a high sugar content to which its high food value is mainly due. Analyses of 19 samples of dried Calimyrna figs recently made at Fresno show an average moisture content of 15.75 per cent and an average sugar content of 2.84 per cent. The average moisture content of 21 samples of dried Adriatic figs was 16.85 per cent and the average sugar content, 64.34; of 8 samples of Black Mission figs, average moisture content, 16.31, and average sugar content, 64.29 per cent. The ash content of dried figs varies from 1.9 to 2.2 per cent, a high percentage when compared to that of other dried fruits.

The following table by Jaffa shows the comparative composition of dried fruits, flour and bread:

	Raisins Dried	Prunes Dried	Figs Dried	Dates Dried	Apricots Dried	Apples Dried	Bread Flour	Bread Dried
Water	28.47	29.14	22.7	38.2	29.4	28.1	12.5	32.9
Protein or nitro- genous com- pounds	4.55	2.54	4.3	2.9	4.7	1.6	10.8	8.7
Fat .....	.61	.59	.7	.3	1.0	2.2	1.0	1.4
Sugar and starch.	62.57	63.37	62.5	55.0	62.5	66.1	75.1	56.5
Crude fiber .....	.66	1.65	8.5	2.2	....	....	.1	....
Mineral matter or ash	3.14	2.71	1.3	1.4	2.4	2.0	.5	.5
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Fuel value per lb., calories ..	1,336	1,292	1,395	1,125	1,290	1,350	1,650	1,270

"These data show us conclusively that the chief nutritive element in dried fruits generally is sugar, one of the most valuable of the carbohydrates and certainly most easily digested and assimilated of all."

The fig ranks second only to flour in the number of calories per pound.

The laxative properties of both fresh and dried figs are well known in all districts. The exact reason for this pecu-

liar property of the fig is not definitely known. It is commonly believed that the laxative quality is mostly due to the bulk of the undigested residue of seeds and fibre. It can be readily shown, however, that the juice from stewed figs produces laxative effects in almost as marked a degree. The work of Dr. Jordan and his associates at the Geneva Station in New York State proves conclusively that the laxative properties of bran are due only partly to the mechanical action of the material. It is, therefore, quite certain that the mild fruit acids of figs contribute materially to their laxative qualities and these qualities persist in all fig products whether fresh or dried, preserved or canned.

Figs Used in Nutrition Clinics

Dried figs are being used as a substitute for cheap candy in nutrition clinics throughout the United States. This action followed the meeting of the National Tuberculosis Association in New York in June when it was announced that the California Peach and Fig Growers would furnish the "fig meat" free for clinics. Statistics presented by health authorities prove that a considerable percentage of school children are suffering from malnutrition in some degree, and in nearly every case these children experience a great craving for sweets. This characteristic brought about the adoption of the fig on account of its combination of protein, minerals and high sugar content. It is believed the fruit will supply the sugar deficiency in the diet which heretofore has been simply bread and milk, and will do much to reduce the consumption of cheap candies. The Peach and Fig Growers have already furnished free 25,000 pounds of fig meat to these clinics and a wide demand has been built up for this product.

The fig interests formed a merger with the peach growers in 1920 and crop contracts with members began with the 1921 crop. Never before has any serious attempt been made on a



Fig orchards are usually irrigated two or three times during the season.

large scale to prepare and market fig products scientifically and nationally. Heretofore figs have been handled as a very small side line by independent packers along with peaches, prunes, raisins and apricots. Within one year after its decision to handle figs as well as peaches, the California Peach and Fig Growers has prepared new products, discovered new uses for figs, found new markets for fresh figs, and has thus materially helped to give the fig a higher rank in the aristocracy of California fruits.

Increasing Recognition of Bran as Element in Diet

Medical Profession and Dietitians Favor Cereal as Highly Nutritive Food, Laxative and Substitute for Habit-Forming Cathartics

By GRAHAM STARR

TEN years ago people who ate unusual foods and spoke of dieting were regarded as eccentric. Certain of the now best known ingredients to aid the digestion and keep the alimentary tracts clear were considered, if they were considered at all, merely as fads whose values were imagined instead of real. Of such was bran, the healthy wheat husk cast aside after a threshing.

A decade ago a man who suggested bran for the breakfast table would have been laughed at. The individual who today proposes bran as an article of food need no longer fear ridicule. Research and intensive study of food values has elevated this substance to a higher position than that granted it just a decade ago by encyclopaedic authorities who stated: "Bran, the ground husk of wheat, oats, barley and other cereals, used for feeding cattle, packing and other purposes."

Mistaken Notions Regarding Bran Content

There existed then, as there exists now in some minds, a mistaken idea that bran is composed almost entirely of fibre. While the fibre structure of bran gives bulk, as a matter of fact, fibre forms but a minor part; the balance being made up of exceedingly nutritious food elements and mineral salts. The caloretic food value of bran is approximately 1,500 calories per pound. Carbohydrates, salts, proteins and fats constitute about ninety per cent of bran; the balance is fibre and moisture. Of these, roughly, eight per cent is salts, sixteen per cent proteins, three per cent fats, ten per cent fibre and moisture, and the balance carbohydrates.

Analysts and physicians have found that bran has the ability to absorb large quantities of water. Because of the coarse fibre, bran is carried through the alimentary tract undigested and in this undigested state reaches the colon or

large intestines. In the digestive process of ordinary foods, which lack bulk and crude fibre, the water is separated in the small intestines, leaving a dry hard bulk for the colon to handle. With bran the reverse is the case. The substance in the colon still retains a large percentage of water, almost twice its weight, in fact, and the digestive process is made easy.

In bran the mineral salts are unimpaired and are contained in larger quantities than in any other food substance known.

Medical Profession Favors Bran

The resurrection of bran can be accredited, first, to the medical profession, which appreciated its food values as highly medicinal, when used in place of laxatives and cathartics; second, to dietitians and boards of health who have been delving for several years into the question of human efficiency as affected by the nature of the food consumed, and third, to the enterprise of manufacturers who have discovered methods of making it a palatable cereal, desirable as a breakfast food. These latter have popularized it by a treatment which has removed the objectionable taste found in the raw product.

Diet today, as a result, bears a more important relation to public health than ever before admitted, and bran has reached the dining room table at home, and can be found on the menus of restaurants and hotels.

Brought in Diet by Modern Living Conditions

The entrance of bran into the national diet is directly traceable to the modern methods of living, methods of which Dr. Harvey W. Wiley accredits to "the exigencies of modern business and recreation." Dr. Wiley deplors the prevalence of careless habits in cleansing the human system and

recommends bran as one of the food adjuncts which should be used at home to correct the evil. "Bran is a normal constituent of cereals," he states. "It carries particularly one of the health factors, or vitamins, namely, the one soluble in water. It is particularly rich in minerals which are normal and necessary. Bran, therefore, tends to restore the natural functions of the intestines which have become impaired by reason of a too concentrated diet."

Dr. Wiley does not stand alone in thus recommending bran. Physicians everywhere have realized the important part played by the diet in building up human efficiency. "The diet," says Dr. I. M. Leavy, of New York, "has the most marked influence upon the normal activities of the bowels." He, too, recommends bran, urging its use in bread made from it.

"The diet of the patient," states Dr. Stanley B. Doyle, of Brooklyn, "must be such as to contain a large amount of residue—that is, after digestion enough matter must be left free in the intestines to stimulate the wall as it passes over the mucous membrane. Bran bread, green or canned corn and fruits are very useful in this regard."

Stimulating Qualities of Bran

"Bran biscuits and potato flour, oatmeal and apple peelings, in short, any inert, mechanical irritant, such as these, taken with meals, will stimulate the sluggish gut, the unsecreting liver and the other lazy tissues," is the statement of Dr. L. K. Hirshberg of Baltimore.

There exists among the medical profession, a fear of the so-called laxative or cathartic medicines. Dr. Wiley states that "the administration of powerful laxatives is of a remedial character and should be left solely to the physician."

The question of the most harmless laxative he regards as a matter of great significance. Dr. William Brady of Elmira, N. Y., speaks of "the habit forming ingredients of most proprietary cathartics," but it remains for Dr. E. S. McIlvain of Nashville, Tenn., to dwell most fervently upon the question of cathartics.

"Through a mistaken notion of what is needed," he says, "enormous quantities of this class of drugs are consumed, chiefly of the proprietary order, and no small proportion of the patients soon arrive at that state where nothing but a repetition of these drastic purges will secure results. The use of cathartics should be avoided as far as possible." In conclusion he remarks that "they afford only temporary relief," and that "in most cases the efficiency of the drug gradually fails and the patient is forced to take a more powerful remedy or increase the dose in order to get any effect."

Dietitians and Health Experts Favor Bran

Naturally, with this fear of the cathartic, the medical profession was glad to find in bran the necessary vitamin, of which Dr. Wiley speaks. Their recommendations for its use, embracing, as they did at first, merely its use as a curative, aroused the interest of the dietitian, and led to an exhaustive study of the entire subject.

The writer has had the opportunity to consult the results, as set forth in correspondence with some of the large state agencies, and these afford an excellent idea of the increased use to which bran is now being put. Dr. C. W. Garrison, State Health Officer of Arkansas, concludes that "bran is favorable as a laxative but requires some care in the method of preparation and consumption."

"There is scarcely any question but what the liberal use of bran in the diet will beneficially affect the most obstinate cases of constipation," states Dr. S. J. Crumbine, secretary of the Kansas State Board of Health, "and, so far as I know, no harmful results from such use have ever been recorded."

Writing for the Maine State Department of Health, the division director, Dr. A. G. Young, states that "most cases of constipation can be ameliorated or overcome by the regulation of the diet so that it shall contain a sufficient quantity of cellulose such as may be had in graham bread and wheat bran together with liberal quantities of fruits, particularly apples eaten shortly after and not as the first course of a meal."

Natural Laxative Qualities

Perhaps most emphatic is the statement of Dr. J. C. Price, Director of the New Jersey Department of Health, who says that the use of bran "as a natural laxative has become extensive by the medical profession and a number of people whom I know are constantly taking it. It seems to have a beneficial effect and to my mind is far superior to the continuous use of drugs."

From the foregoing there seems to be no doubt as to the position which bran now occupies in the diet. It is served in numerous ways made attractive to the palate by all the art of the culinary expert. Bran breads, gems, muffins, puddings and dozens of other recipes have been concocted, each containing the necessary vitamin and the essential minerals.

Summarized, the results would seem to show that bran has a number of attributes highly desirable from several standpoints. First of these, is its action as a mild laxative. Scarcely less important is its value as a substitute for habit forming cathartics, and thirdly, is its nutritive value as a container of one of the three known vitamins.

Chemically, it contains eight per cent of essential salts and is also blessed with a small percentage of phosphorus and calcium. Of these, mineral salts, is a particularly valuable ingredient, and physicians state that there is no danger of there being too great a supply of the phosphorus and calcium elements in the diet.

The preparation of bran is another item which bears special attention. Ordinarily, it is covered with bacteria and it is necessary that it be well processed before it is used. Manufacturers of the product have developed this to a high point and consequently, the bran which reaches the consumers' market is usually ready for the table without any fear as to constituency.

Rich, Heavy Sirup Possible by Use of Invertase

A new process that promises to do away with a great many difficulties that have heretofore faced the sirup manufacturer has been developed recently by the Bureau of Chemistry of the United States Department of Agriculture, according to a recent bulletin.

Sugar-cane sirup contains two kinds of sugar, sucrose and invert sugar, the former in much the larger amount, but the degree of sweetness does not depend at all upon the proportions of these two kinds of sugar. Sucrose, however, crystallizes much more readily than the invert sugar. By adding a small amount of invertase to the sirup in the process of manufacture, it is possible to change some, or even all, of the sucrose into invert sugar, which permits, then, a higher concentration without danger of crystallization. The thicker sirup which is made possible because of this inversion will not readily ferment. The process is similar to that employed by bees in changing the sucrose in nectar into invert sugar, and permits the bees to concentrate the honey so that it takes up less room and will not ferment nor sugar so readily. The bees have an enzyme of their own.

The inversion of the sucrose in cane sirup can be brought about by the use of acids, but this affects the flavor and color. Invertase is absolutely inert, except for the effect it has of changing one kind of sugar to another kind. It leaves no taste or color, and has no effect whatever on persons eating sirup to which it is added. One pound of it is sufficient to cause the necessary inversion in about 800 gallons of sirup, and it is so highly standardized that its activity is practically constant.

With this new process it is now possible to produce a very thick sirup which will not readily ferment in warm weather and one which will not ordinarily crystallize. The invertase process may also be of value to those manufacturers and packers of simple sirups, maple sirup, mixed or blended sirups, and sirups made especially for the soda-fountain trade, especially wherever it is desired for any reason to market a heavier bodied sugar sirup than would otherwise be possible. Thick sirups keep better and do not cost so much to ship.

Use of Pectin in Jams and Jellies

New Data on This and Other Important Factors Now Being Sought by Scientists—Old Manufacturing Methods Discarded

Editor's Note.—H. S. Paine has been affiliated for some time with the Bureau of Chemistry where he has made many important investigations on various technical aspects of jam and jelly manufacturing. Most interesting perhaps, in connection with the following article, are the suggestions made by Dr. Paine by way of indicating the practical results which may be expected from chemical research in this field.

By H. S. PAINE

Bureau of Chemistry, U. S. Department of Agriculture

IT may be considered as a self-evident fact that any manufacturer of a finished product should be as familiar as possible with the character, behavior and properties of the material with which he is dealing. He must be able to foresee and estimate with some degree of accuracy the results which may be expected from a given lot of raw material. Otherwise he cannot expect to conduct his manufacturing operations with any degree of certainty and cannot estimate with any degree of exactness the yield or quality of his final products or the cost of manufacture.

The tendency in all lines of manufacture is toward a greater degree of standardization in the technology of production. It certainly cannot be disputed that improvements in processes of manufacture must keep pace with increased efficiency of business organization and methods of salesmanship. No one will contend that the commercial jelly, jam and preserve industry has reached a stage where there is no opportunity for further advance in processes of manufacture, and where constructive information of value along this line can no longer be obtained. Some consideration of the possibility of increasing our knowledge along this line may, therefore, be of value at the present moment.

Former Hit-or-Miss Rules in Discard

The old-time hit-or-miss and rule-of-thumb methods of jelly, jam and preserve making have been to a great extent superseded so far as commercial production is concerned. It is, however, only within comparatively recent years that any scientific investigation of the fundamental principles of jelly making and preserving has been made. I wish to mention especially in this connection the investigations of Cruess, Goldthwaite, and Campbell and various English chemists. Nevertheless, only a beginning has been made, and there is great opportunity—in fact, necessity—for further constructive work of this character.

The work that has been done so far relates principally to a study of the effect of varying proportions of pectin, sugar and acid on the consistency of jellies, and to some extent, jams. This work has already yielded important results, since it has made possible a greater degree of standardization of proportions of sugar, pectin and acid and has permitted the manufacturer to predict the yields and quality of his final product with an increased degree of certainty. In this con-

nection, the writer wishes to state that the Bureau of Chemistry is now conducting a chemical investigation of pectin and fruit materials in their relation to jelly and jam manufacture. This work is being done in connection with the enforcement of the Federal Food and Drugs Act, and while the investigation is being conducted primarily from a regulatory standpoint, it will nevertheless be our endeavor to secure as a by-product of this work as much constructive information as possible for the benefit of the jelly, jam and preserve industry.

Study of Pectin of Great Practical Value

Inasmuch as the use of pectin is a live topic at the present time, it may be of interest to discuss to some extent the nature and properties of this important substance, especially since any advance in our knowledge of this subject may be expected to have important practical results. In this discussion, however, the writer is not referring primarily or specifically to commercial pectin—he is, on the contrary, discussing pectin in general as one of the basic ingredients in fruit material.

Pectin is widely distributed in nature in various plants and fruits and constitutes to a considerable extent the cell wall structure, the cell wall being lined inside and outside with a layer of cellulose. As the fruit changes in composition with varying degree of maturity, the character of this cell wall material also changes to some extent.

The cell wall structure also varies in different fruits and also to some extent in different varieties of the same fruit. This accounts to a great extent for the variation in amount of pectin and jellying capacity of different fruits and of the same fruit at different stages of maturity. It also explains why pectin is only found in small amount in cold-pressed juice.

Absolutely chemically pure pectin has never been isolated, and in the purest preparations which have been obtained, it is not certain whether there are one or more pectin compounds present. In fact, there is evidence to show that the cell wall material which is extracted from fruit by hot water or steam is a mixture of variable composition. It is known that much of this so-called pectin when heated with acids is finally completely decomposed with production of two rare sugars known as arabinose and galactose.

While experiments have shown that pectin is not decom-

NEEDED—FURTHER INVESTIGATION

Manufacturers of jellies, jams and preserves will find this article of interest as presenting the point of view of the chemist. Dr. Paine does not undertake to speak from the standpoint of one who has had commercial experience, but discusses the subject from the angle of the scientist who has made careful study of fruit and fruit products and the physical and chemical principles involved in jelly, jam and preserve manufacture.

The author indicates quite plainly that the present status of knowledge on the whole matter of the most favorable conditions for pectin, color and flavor are subject to much further investigation and possible modification and shows clearly that the hit-or-miss practices of a generation ago have been revised.—The Editors.

posed to this extent in the ordinary course of manufacture of jellies and jams, there is good reason to believe that prolonged boiling, especially in the presence of acid, may modify the pectin to some extent and unfavorably affect its jellying properties. Pectin may undergo a long series of transformations before it finally reaches the stage where it is decomposed into the two sugars above mentioned.

Pectin Sensitive to Prolonged Heating

The effect of these successive transformations on the jellying power has never been fully investigated and we know very little regarding the behavior of pectin in this respect. At the same time, it has been observed as a matter of experience that the pectin of certain fruits is particularly sensitive to prolonged heating, and that its jellying power may be injuriously affected under such conditions. This naturally brings up the question as to whether the pectin of all fruits are identical in composition and behavior. In other words, is there a single pectin which is rather widely distributed in nature in various fruits and plants, or do the pectins of various fruits differ somewhat in composition and behavior, and especially in jellying power? This raises the further question as to whether the difference in jellying power of juices from various fruits is due to a difference in character of pectin as well as amount of pectin. This is a matter of considerable practical importance, since, if this were fully known, the way would be open for a better control of jelly and jam manufacture from various fruit materials.

It has been especially advocated by Campbell that the manufacture of jelly should be standardized on the basis of the amount of pectin available in the raw materials, and that the proportions of sugar and acid should be adjusted to the amount of pectin present on the basis of ratios worked out in the case of different fruit materials. This has apparently been done with success so long as the character of the raw material remains constant. However, any appreciable change in the raw material, or method of treatment of same, would require this standardization to be done over again.

Determining Amount of Pectin

This brings up the question of a suitable method for determining the amount of pectin present in any given material. Precipitation by means of a considerable excess of alcohol has been the usual final recourse for the purpose of definitely ascertaining the amount of pectin present. This can then be interpreted in terms of specific gravity or degrees Baume or degrees Brix of the fruit juice used, with the specification that a certain proportion of sugar should be used for each degree of density, the final acidity being also adjusted to a certain value.

This standardization represents a distinct step forward. The writer merely wishes to call attention to the fact that precipitation with alcohol, which has been used as the final basis of reference for determining the amount of pectin present, may not give concordant results when applied to different fruit materials, this being due to the fact that other substances than pectin may be precipitated. Furthermore, there may possibly be qualitative as well as quantitative differences in the pectin present in different fruits. In other words, pectin may differ in kind as well as in amount and this difference in kind may considerably affect the jellying property. Identical weights of alcohol precipitate from different fruit juices would not, therefore, necessarily indicate that the same amounts of pectin were present or that these amounts would have the same jellying capacity.

As an illustration of the difficulty of accurately gauging the amount of pectin present, it may be mentioned that peach and strawberry juices frequently yield fairly abundant precipitates when mixed with alcohol. Yet it is quite well known that it is practically impossible to secure satisfactory jellies from either peach or strawberry juice. It is quite possible, therefore, that the material precipitated from peach and strawberry juices by alcohol consists only in part of pectin, or possibly contains pectin in such form as to have little jellying capacity. Fairly satisfactory peach and strawberry jellies have been made by adding sufficient acid. The flavor of these jellies was, however, not satisfactory. This brings up a further question relative to the proportion of acid that is required in order to produce jelly of suitable consistency. Does this proportion of acid vary to any great extent with pectin from different fruits, provided all other conditions are

equal? This is another matter which apparently has not been fully investigated.

Raw Material Must Be Constant in Composition

The net result of the standardization so far accomplished appears to be that all goes well so long as the raw material used is fairly constant in composition. However, the exceptions which still occur in successfully and continuously producing a standard article of the quality desired indicate the necessity for further fundamental information. Somehow, somewhere, this further necessary information must be obtained if the art of jelly, jam and preserve manufacture is to be completely rescued from the realm of rule-of-thumb methods and reduced to an exact science which can be accurately controlled at all stages.

I have enlarged upon the topic of pectin, since this affords a good illustration of the desirability, and, in fact, necessity, for further scientific research in this industry. I trust that the considerations which I have advanced will not be regarded as being merely theoretical. In fact, it does not appear that much vision is required in order to perceive the practical results which could be obtained if we had more exact knowledge regarding the points mentioned. It must also be realized that the theory of today is very often the practice of tomorrow.

Theories Must Be Capable of Application

This is an inventive and scientific age and those who are concerned with manufacturing processes are no longer content to operate by rule-of-thumb methods, but are continually seeking to discover the underlying reasons for the behavior of the material with which they are dealing, and the various steps in the processes used. When these underlying reasons are once thoroughly understood, the various steps in the manufacturing processes are at once capable of being more accurately controlled. I am assuming, of course, that the information and knowledge gained as a result of scientific investigation must finally be translated into simple and practical tests which can be readily and quickly used in the factory, or at least must be reduced to such terms as will enable it to be easily and rapidly utilized in the standardization of the process of manufacture.

In discussing the subject of pectin in such detail, the writer wishes to avoid giving any impression that he is emphasizing or laying undue stress on pectin, to the exclusion of such highly desirable qualities as color and flavor. It merely happens that the subject of pectin is one regarding which very little has been known and which is just now beginning to be more fully understood. Consequently, it serves perhaps as a better illustration for some of the points which I have tried to emphasize. It is, of course, fully understood that the pectin gel, which is due essentially to water, pectin, acid and sugar, is merely a medium in which suitable and attractive color and flavor are to be embodied in order to produce a satisfactory jelly. The color and flavor are, in fact, the distinguishing characteristics of the jelly and should go far toward determining its value.

Do Favorable Conditions Vary for Pectin, Color and Flavor?

Since pectin, color and flavor are the essential properties which it is desired to extract from fruit in the process of jelly manufacture, there naturally arises the question as to whether the conditions which are most suitable for accomplishing one of these objects are also suitable for accomplishing all of them. In other words, are the conditions of temperature, proportion of water, acidity, time of heating and subsequent treatment which are most suitable for extraction of pectin, also suitable for extraction of color and flavor, or, on the other hand, does the manufacturer gain one of these at the expense of the others? The most favorable conditions might also vary with different fruits. There is much food for thought in considering this subject, and, so far as the writer is aware, the matter has never been thoroughly and systematically investigated. Yet it will appear self-evident that these experiments should be made, since such experiments would amount to no more than an attempt to utilize the raw material in the most efficient manner possible. This is, in effect, what every manufacturer, regardless of the commodity he produces, is attempting, or should attempt, to do with the raw material employed.

The question of the effect of varying proportions of invert sugar in jellies or jams is another matter which has not

yet been thoroughly investigated. It is, of course, well known that a certain proportion of the sugar used should be inverted in order to prevent crystallization. Since the juice of the fruit material is usually fairly acid and, if not sufficiently so, acid is added, such inversion ordinarily is accomplished by adding sugar at a certain time before the batch is finished. The presence of the acid and the fact that boiling temperature is maintained for a certain period after the sugar is added causes the inversion of a certain proportion of the sugar. The proportion of sugar inverted may, however, vary to a considerable extent under ordinary conditions. It would, therefore, be desirable to know whether too great inversion has any injurious effect on the quality of the jelly and, if so, in what respect. Of course, in the case of jellies and jams made with considerable proportions of glucose, the necessity for inversion does not occur, since the glucose itself prevents, or at least greatly retards, the crystallization of any sugar which may be added.

Clear Jelly Another Important Problem

Clarification of fruit juices or jelly stock for the purpose of securing a perfectly clear jelly is another matter which would well repay some investigation. There is no doubt that a clear sparkling jelly or jam is much more attractive to the purchaser than one which has a cloudy or turbid appearance. Much chemical research has been done in recent years on the clarification of various sugar liquids, especially in connection with the manufacture of sugar, and a number of improvements have been made along this line. The substances which cause the turbid, or cloudy, appearance of jelly stock or jelly belong to a class chemically known as colloids. Our knowledge of the behavior of this class of substances and means for flocculating or precipitating them in order to clarify the solution in which they are suspended have increased considerably in recent years. It is believed that some of the information recently gained along this line could be applied with profit to the clarification of fruit juice and jelly stock. The application of these principles is perhaps somewhat more difficult with fruit juice than with some other liquids, since it is desirable to effect this clarification without any loss of flavor. An exception to this requirement would, of course, occur in the case of apple waste extracts containing pectin, since it is desirable with this material to remove as much flavor as possible.

General Reduction in Heating Time Required

A general reduction, so far as possible, in the time of heating fruit material would appear to be advisable. Experiments have already shown that fruit flavor is lost to some extent by evaporation and also by decomposition due to heating. Some caramelization as well as alteration of fruit flavor due to heating may also occur. Reduction in time of heating means, however, that there must be less excess of water to eliminate by evaporation and this again implies a closer calculation of the proportion of ingredients. In fact, from whatever angle one discusses the subject, he is likely to arrive finally at the question of how to calculate correctly the proportions of ingredients so as to predict accurately the amount and character of the final product. Correct and close calculation of the proportion of ingredients is, in turn, dependent upon a knowledge of the amount of pectin available. Vacuum pan boiling has certain advantages in that the product may be finished at a lower temperature, thereby eliminating caramelization and loss and alteration of flavor, which occur at higher temperatures. Vacuum pan boiling has been advantageously used in a number of food industries with very satisfactory results.

A suitable jelly tester or instrument which could be used for determining the consistency of jams and jellies in a definite and concrete manner, so that the results could be used for comparative purposes, would apparently be of considerable value. Such an instrument would also be of value in investigational work for the purpose of determining whether the jellying capacity of pectin had been altered to any appreciable extent by such factors as prolonged heating, etc. Improved methods for keeping fruits and jelly and jam stock for subsequent manufacturing purposes so as to preserve more effectively color and flavor, would also be of considerable value. This latter subject is, however, an extensive one

in itself, and can be no more than mentioned in this discussion.

The foregoing discussion has been largely confined to jelly since it has been practically impossible in the scope of this discussion to consider all products of the industry in detail. However, it is believed that the considerations which have been advanced in the case of jelly apply to a great extent to other products such as preserves, jams, fruit butters, marmalades, etc. I have made no attempt in the course of this discussion to consider the application of the Federal Food and Drugs Act to jelly, jam and preserve manufacture, but have purposely confined myself to what may be termed the technology of production of these products.

Better Knowledge of Manufacturing Factors Urged

In the writer's opinion the necessity for a more thorough and fundamental knowledge of all the factors involved in the manufacture of jelly, jam and preserves is bound to increase with further development of the industry. It is obvious that the necessity for close factory control is much greater on large scale production than on small scale production, and as individual factories increase in amount of output, the desirability of a more complete understanding of the principles involved, and accurate control at all stages of production will be more and more apparent. This has been the experience of other industries, and there is no reason to believe that the jelly, jam and preserve industry constitutes an exception. As an illustration, there may be mentioned the soap industry, which handles a wide variety of oils and fats as raw material for the manufacture of soap; yet the soap manufacturer is able to turn out highly standardized articles from these widely varying raw materials. Chemical research and suitable testing of the oils and fats used are largely responsible for this achievement. The writer cannot refrain from expressing the conviction that the development of the jelly, jam and preserve industry could be greatly advanced by similar means.

In conclusion, I would like to emphasize the fact that the Bureau of Chemistry in its scientific work is desirous of assisting the industry in a constructive way to the greatest extent possible, and will be glad to utilize every opportunity of securing fundamental information such as that which has been indicated in this discussion.

Chilean Trade in Canned Goods

During recent years the canning industry in Chile has developed to such an extent that there are very few articles of preserved foodstuffs that can not be supplied by the native canners, according to a recent report of Vice Consul Clarence H. Doughty, Valparaiso, to the Department of Commerce. The importance of canned fruits and vegetables is gradually decreasing, as the use of the domestic product increases. American canned goods, says the writer, with the exception of salmon, can not compete with the Chilean goods in price. However, the consumer in the market has had an opportunity to become acquainted with American canned goods in the past few years, and it is thought that the trade will gradually increase in special lines, such as asparagus, tomatoes, meats and salmon. Native canners are not able to can tomatoes with the success they have met with in preserving other vegetables, and the imported product is preferred. Although asparagus is grown and canned here, there is a large demand for the American brands.

The total imports of canned salmon into Chile during 1920 were 5,188,813 pounds, of which 4,709,649 pounds came from the United States. Canned fruits and vegetables imported amounted to 69,795 pounds and 181,467 pounds, respectively, the United States supplying 28,792 and 60,725 pounds.

It is suggested that the English language be used on all labels of American canned goods intended for this market. A good many American firms have well-established trademarks and their labels are already known here. In cases where special instructions are required for preparation, it would be well to attach a supplementary label in Spanish. There is no special preference as to the size or shape of the can. The usual sizes are the kilo of 2.2 pounds and the half-kilo.

Policy of Chain Grocery Stores Defended

Two Speakers at National Canners' Association's Annual Convention Point Out Their Advantage

Editor's Note:—There has been much criticism of the chain grocery stores from the retail grocers and the organizations which represent them. There has also been much criticism of the manufacturers of food products who sell to chain stores on terms more favorable than are granted to the small buyer. During most of this discussion the representatives of the chain store interests have made no reply. At the National Canners' Association's annual convention at Louisville, Ky., in January two speakers for the chain stores presented their side of the story. The American Food Journal herewith publishes both addresses as an interesting contribution to this important subject.

By HARRY L. JONES

President National Chain Store Grocers' Association of the United States

THE economic value of the chain grocer, while questioned a few years ago, is to-day undisputed. It is an acknowledged fact, that we are the most direct medium of distribution from the producer to the consumer, and accomplish this with the least possible expenditure.

If there is one branch of the business I represent that is more important than another, it is purchasing, and if the old saying, "merchandise well bought is half sold," applies anywhere, it certainly does to a great extent in the economy store. As the economic value of the chain store grocer lies in the fact that he is a means to the reduction in the cost of living, you may be sure that any advantage he gains in a purchase is not kept for himself but is invariably passed on to his customer, the consumer, in a bid for the continuation of patronage. Volume and turnover are so fundamental with him that his profit is really of secondary consideration. His great desire is to build a large average volume per store in order that his buying power will be so great that he will be in a position to invite the lowest possible prices from the producers with whom he is doing business in his efforts to best serve the consumer. When this is done, profits usually follow.

Large Volume and Low Overhead

Large sales per store mean a low percentage of selling cost, which is also of great assistance to him in keeping his retail prices at a low point. In connection with purchasing, the matter of warehousing and distribution must be given consideration. The chain store operator's brain is working continually in an endeavor to uncover more economical means of distribution from the factory of the producer to his individual store.

As a consequence of this study, we have seen that the most economical operation of the chain can be had through high concentration of the units making up the chain. Therefore, you will find local chains in various geographical centers operating from 50 to 500 stores, and in some instances more, with their warehouse as near the center as possible. In this way merchandise can be shipped directly from the point of production to the door of the chain's warehouse and from there distributed via motor truck to the various stores of the chain. Under this plan, it is obvious that distribution can be had at exceptionally low cost.

The various chains that are national in character are composed of many similar units. Under this plan of organization there is no limit to the number of stores that can be operated efficiently in one chain.

If it has not already occurred to the manufacturer that he can get better distribution, at less cost, through the chain, I am glad of this opportunity to bring it to his attention. Distribution can be had through the stores of the various chains, consisting of from fifty into the thousands of units, through the efforts of a single salesman. If the salesman can sell the buyer at the home office, he immediately secures distribution through all of the stores making

up the chain. It is not necessary for the manufacturer to put a score of specialty men in the field to develop business after he has secured his distribution, as the sales manager at the headquarters of the chain sees to this for him.

Let us turn our attention for a moment to the plan under which the chain so successfully secures consumer's goodwill.

Importance of Man Behind the Counter

Statisticians have worn out carloads of pencils in an endeavor to arrive at the percentage value of the man behind the counter. At the present time, there is a dispute between these men as to whether his value in building business is 98 or 99 per cent. I am satisfied to permit them to fight this issue out to their own satisfaction. I am convinced, however, that he is the greatest factor entering into this game of business building. The value of his service is really inestimable. The chain store merchant is fully conscious that his business cannot succeed unless he has the most capable men obtainable behind his counters. He therefore plans to obtain such men. This work is performed through field superintendents who give great study to the problem of selecting the personnel under their jurisdiction. When he receives an application, which is in his opinion worthy of consideration, the same is forwarded to headquarters and a very thorough investigation is made by writing the applicant's former employers and others with whom he has been associated in business. If his references are satisfactory in every sense he is put on the approved list and given employment when a vacancy occurs in that immediate district.

There are four cardinal virtues this manager must have: Honesty, courtesy, cleanliness and ability to sell.

The manager must be honest to the customer as well as to the company and he is subject to dismissal just as quickly if it is discovered that he is dishonest to his customers, as if he were dishonest to the company. Under no circumstances is he allowed to sell merchandise of one grade at the price of another. He is not permitted to include the weight of trays or other containers when weighing merchandise but he must in all instances give every customer 16 oz. to the pound.

Courtesy to Customers Insisted Upon

A manager is schooled in the necessity of being courteous to his trade, irrespective of age or condition. A mother can send her child to a chain grocery store with the assurance that the same consideration will be given the child as if she herself had called. A customer who purchases one box of matches must receive the same consideration as a customer whose purchase amounts to several dollars.

Managers must keep their stores immaculately clean. Windows must be washed and trimmed at certain intervals. Stocks must be attractively arranged. No old stock is allowed to accumulate in the store. The refrigerators

are subject to weekly inspection and if butter or other perishable commodity is not sold promptly it must be reported for inspection and removed if necessary. The manager must wear a white coat and apron and in general keep himself presentable at all times. He must have ability to sell, but he must do so without giving offense.

Managers are urged to sell customers their requirements only. There are many instances however when it is a favor to the customers to bring to their attention certain items that in their rush they may have forgotten, and also merchandise that may be particularly low in price or of unusual value, but in all instances they must refrain from annoying a customer or being over zealous in their ambition to sell.

You can readily see that the advantage obtained from this method of procedure on the part of the chain store grocers results in a three-fold benefit.

Store Manager's Profit from Sales

In the first place the manager himself profits because of the increased business which is a natural result in stores so manned, his remuneration being based on a fixed weekly wage, plus a liberal percentage of gross sales.

The customer benefits as she gets fresh goods, fairly priced, honest weight, sold from clean stores by courteous salesmen. She is invited to return any merchandise that is not absolutely satisfactory. It will be replaced with other merchandise or her money will be refunded at her option. In the chain grocery store the customer is always right.

The company benefits as a natural consequence of having a loyal and honest manager who has the ability to increase the turnover at his store.

Stores are Closely Supervised

Chain grocery stores are supervised very closely. Economy is probably more clearly defined in the operation of stores of this nature than in any other. We do not economize by underpaying our employees, but rather through the elimination of losses that are the usual thing when a single store is operated by the individual. As our stocks are turned quickly there is not the same reason for inventory losses as when the turnover is not so good. This, of course, results in a direct benefit to the customer.

No other medium of distribution features canned foods as effectively everyday in the year as the chain store grocer. He is, therefore, of decided value to both the canner and the consumer.

As a result of all this, the customer has come to have absolute confidence in the economy store and the merchandise she purchases therein. She knows that, when an item is priced low, it is not because it is of inferior quality, but rather good quality at an unusually low price, which

the chain store is passing on to her because of a very favorable purchase on their part, and because of their ability to do so as a consequence of their very low operating cost.

The chain grocery store is becoming particularly popular because of the above and many other reasons too numerous to dwell upon. It is worthy of mention, however, that the chain grocer's policy is to immediately reduce the price of merchandise to the retail trade when there is a reduction in the cost of the commodity, irrespective of the fact that he may have large stocks on hand purchased at higher prices. This is one of the factors that is appreciated by the customer and it has reacted to the glory of the fair business methods employed by these stores.

Accurate Accounting an Aid to Success

Although an accurate accounting system will not assure the success of an enterprise, it nevertheless is absolutely essential that an organization, especially in these times of hysteria, competition and diminishing prices, must have reliable monthly data which will give them accurate information, as to their condition and results from operations. This, the chain store grocery system has. At the end of each month, and in instances oftener, information is available as to sales, inventory, percentage of total expense of sales, gross profit, net profit, etc., also statistical information showing percentage of rent, salaries, trucking, freight, depreciation, light, heat, wrapping material, etc., to sales, not only for the chain as a unit, but for each group as well as each individual store.

Without this information an executive, no matter how shrewd or careful, is unable to detect the weak links in his chain. If, as a going concern, a condition should arise whereby it became necessary for him to apply to his banker for funds, these statements would be his best sponsors.

Besides the above, each of the larger chains have their own traffic department, legal department, chemical laboratory, and often do considerable manufacturing, all of which tends to increase the service they render.

In conclusion, let me add, that last year we formed an association similar to the one you have, and, while we are still very young, we are already accomplishing things that cannot do other than be of great benefit to the chain store grocer and we hope eventually to be influential in bringing about other changes that will be for the good of the entire industry.

We will not only go to great length to avoid strife, but we are holding out our hand in friendship, hoping that you and all other branches of food production in this great country of ours will meet us half way in an endeavor to bring to the consumer necessities of life at the lowest possible price.

"Every-Day Economy" and Not "Cut Prices" is Present Plan of Chain Store Selling

By ALBERT IVISON

President of the Quaker Maid Chain of Grocery Stores, Louisville, Ky.

FIRST of all, I would like to state very emphatically that contrary to the general understood idea prevalent among many of the trade, the modern chain store is not a cut price or a cut rate institution. I will try later to explain to you gentlemen why we take this stand.

The consumer is interested, we think, in good food at right prices. She wants courtesy and certainly must have cleanliness, and she is entitled and wants service commensurate with the price charged for the article or articles in question. She certainly is entitled to receive what she pays for, and we believe she should not be charged a price for service that is not rendered. In this connection then, we of the chain store industry treat all our customers alike. Do you not think that when you go into a store and make a purchase, carrying the same home, that you are being

overcharged if the price of the article in question is based on service in the shape of delivery, credit, etc., as rendered to the majority of that type of store's trade. That then is where the chain store, we claim, takes its correct economic standing in the community.

We have no quarrel with any other branch of the food supply business. We claim that we are legitimate grocers entitled to direct buying facilities based on quantity used, just the same as any other branch of the business. Some of the gentlemen who take an opposite view do so because they aver that we cut prices. To this idea I would agree more or less if it were applied to general conditions existing in the chain store business ten or fifteen years ago, but the chain stores have learned to conduct their on a more scientific basis, and a basis that is more equitable to their fel-

low grocer of the old line school and the manufacturers of the products they are distributing.

System of Making Prices Explained

We claim a store that charges, say 15 cents for an article five days of the week and then has a cut price sale on that same article of, say 10 cents or 11 cents on some certain day or days, is probably abusing the standard that article is supposed to maintain. As far as the consumer is concerned, we believe that certainly when she pays that particular store 15 cents for that article she is being charged too much. Otherwise, how could that merchant place on the same article a price of 10 cents during the special sale mentioned if the price of 15 cents did not allow him enough leeway commensurate with his operating cost to permit him to do so. We believe also that a condition of this kind tends to reduce or nullify entirely the confidence of the consumer in the store using such practices, and probably in the goods. In many cases the consumer will send a child to the store. How then is she to know what to send in purchase of articles if the price fluctuates almost daily?

As far as what the consumer gets is concerned, we feel that the more modern method of conducting the chain store means that she gets her purchase at a price based on the service she is rendering to the merchant when she pays cash and carries the goods home. Let us take an article, say that costs the manufacturer 10 cents to produce and he decides that 20 cents should be its retail price. What method has he used to determine what the article ought to sell for? He probably takes as a basis his idea of what overhead will be necessary to tack on to the article in question passing through the various old line channels that he figures it must pass through it before it reaches the ultimate consumer. As near as I am informed, statistics tell us that the average retailer's overhead is 20 per cent or more. We feel that the average retailer expects to get at least 3 or 4 per cent net profit on the sale. Therefore, we already have 24 per cent added to the manufacturer's cost. The article, previous to this, has passed at least through one other dealer's hands, that being the wholesaler. Again, statistics tell us that the wholesaler's average overhead is around 10 per cent, and I think we will all agree that the wholesaler must have at least 3 per cent profit on his turnover. Therefore, without taking into account any overhead or profit for the original producer, we now have 37 per cent added to the original cost of the article. This, then, we believe is approximately what the manufacturer has in mind when he figures that the retailer should receive 20 cents for the article in question.

Let me ask you gentlemen in all fairness then, is it not just as legitimate, if that article does not pass through these channels, that it be sold at a less margin of profit, because are we not (and when I say "we" I am, of course, speaking of the chain store branch of the business) asking the consumer to render us a service which the old line grocer renders for her? Most chain stores would consider themselves fortunate if their total gross profit were one-half of the figures mentioned through the other channels or in other words 19 to 20 per cent. Surely then, a chain store grocer would be guilty of profiteering in the worst sense should he be accused of making 20 per cent net profit on the turnover. Therefore, inasmuch as it is the masses the majority of grocers have to depend upon rather than the classes; surely if the consumer not in that class renders the service mentioned in lieu of the grocer rendering same for her, she is entitled to a substantial discount. This discount she receives through the chain store method of handling groceries.

Let me right here try to point out, in verification of the illustration just given, another similar condition that exists, which everybody knows. Suppose we go to the ticket office of a railroad and ask for a ticket, say to New York City. We are informed that the price of the ticket is, say \$30. Very true. Then we inform the ticket agent that we want a little more service. In other words, a Pullman or first class passage. He tells us that the cost will be \$9 ad-

ditional, or \$39 for the same passage but in a little better style. Are we then to assume that the railroad is guilty of cutting prices when two persons can go the same distance over the same railroad, one paying \$30 and the other \$39? On the one hand, the person riding for \$30 is satisfied without the extra service, and the person riding for \$39 is satisfied to pay for the extra service. Again we come to the fact that it is purely up to the consumer.

The "Every-Day-Economy" Plan

Most modern chain stores to-day are operated on what is known as the every-day-economy-price plan as different from the old cut-price or cut-rate idea. This means that just as the manufacturer sets as a probable retail price on the article I have been discussing of 20 cents, just so then the chain store, using its own cost figuring department, takes that article, figures its cost, adds to same its operating cost, and places thereon a profit commensurate with the service it renders, taking into account its turnover per year and charges that retail price. Should that retail price be, say 17 cents, the modern method is to set that price on the article and it remains without change unless the market goes up or down, as the case may be. Surely then, in all fairness to the consumer and the manufacturer, are we not fair in assuming that if the price through the old line channels is 20 cents (and probably legitimately so) the every-day-economy price, based on service rendered through the chain store, of 17 cents is every bit as legitimate? In fact, I would go further to say that from a consumer's standpoint, we feel that a 17 cent price is really more equitable to that customer than a 20 per cent price through the old line channel if the consumer agrees to carry the particular article with her.

It is really unfair, we think, to the manufacturer and certainly to the legitimate chain store grocer where misleading and sometimes even scurrilous and untruthful remarks are made to the consumer by the old line retailer for the purpose of keeping the customer from going to the chain store. I might relate an experience that happened recently in one of our stores. It seems that a lady came into the store, bringing with her an empty Karo syrup can. She inquired of the manager if he had Karo syrup in stock and on being informed in the affirmative she asked to see it. When shown the particular sized can, she compared it with her empty one, seemingly surprised. She asked the price and when informed expressed herself to the manager as follows: "There must be some mistake, for I have been paying 65 cents for this same article and you are selling it for 44 cents." The manager then asked her why she had brought the empty can and she replied that she had been upbraiding her grocer for the prices he charged as compared to ours. The grocer, of course, in order to hold his customer, naturally used the old stock arguments that we sold job lots, fire stocks, and so on and so forth, and on being quizzed by the lady how he could explain that we were selling a standard brand of goods like Karo sirup for 44 cents when he charged 65 cents for it, stated that we had special short-size cans packed especially for us. So, that was why she wanted to compare the empty can, retained from the purchase procured from her grocer with the can on sale at our stores. Do you think gentlemen, that is fair to the consumer, without questioning its unfairness to the chain store?

Both Types of Grocers Needed

It is then simply a question in my mind that both types of grocers are needed and it would well behoove both types to attend strictly to their own business. We feel that as far as the consumer is concerned there will always be a demand for a business-like properly managed "service and credit" type of grocery. We feel also that the chain store has its definite standing in the community. Is there, then, any real reason why the legitimate every-day-economy-price chain store is not entitled to the same goods at the same prices at least as much so as any other branch of the grocery business? If we should submit that question to the subject of this address—the consumer—rest assured, the chain store will be satisfied to abide by her decision.

Some Precautions in Canning Process—I

Research Laboratory of National Cannery Association Compiles New Data on Temperatures, Sealing and Sub-Standards

By W. D. BIGELOW*

Director Research Laboratory, National Cannery Association

THE processor learns much from the change in consistency produced in evaporated milk by processing. Other things being equal, this change is proportional to the amount of heating. It is a measure of the amount of heating the milk has received, and the processor is warned of any variation in the penetration of heat into different parts of the sterilizer. The degree of thickness which the process imparts to normally evaporated milk is considered desirable by the industry, and it is customary for process men to sterilize several cans in a small sample sterilizer in order to determine the time and temperature which gives the consistency regarded as most desirable. The amount of heat necessary to give this consistency is sufficient to kill bacteria which ordinarily occur in milk and amply sufficient to destroy all bacteria which might under any circumstances be injurious to health.

The processor in a milk condensary comes then to look upon the consistency of the milk as a measure of the sterilizing value of the process which the product has been given. He grows unconsciously to regard the desirable consistency as proof of sterility. This of course is an erroneous view. The heavy consistency of evaporated milk has no relation to the sterility of the milk, except that both are produced by heat. The amount of heat necessary to give the desired consistency varies with the acidity of the product and with other characteristics of its composition, some of which are only partly understood. These changes in composition may also influence the amount of heat necessary to sterilize the product, but if so they influence it to a different extent and perhaps in a different way. There is no relation between the consistency of evaporated milk and the amount of heat necessary to sterilize it. The assumption that such a relation exists is likely to lead to under-sterilization.

Amount of Heat Necessary for Sterilization

It is true, as stated above, that the amount of heat necessary to give the desired consistency to evaporated milk is usually sufficient to sterilize it. But frequently it is not. The heat penetration of milk under the conditions of sterilizing is relatively uniform. The method of sterilizing is usually uniform within the same plant. The time and temperature of heating necessary to sterilize a product,

therefore, depends on the bacteria which are present. Although the kinds of bacteria which are usually present in milk are destroyed by the amount of heat necessary to give to evaporated milk the desired consistency, more resistant kinds of bacteria are sometimes present, and a higher process or a longer process is necessary for their destruction.

Just why these more resistant bacteria are present at some times and not at others, we cannot say. That should be made a special subject of research. The research laboratory had planned to investigate the matter during the last year, but because of the enforced retrenchment of funds has not been able to do so. We had hoped that before this time we might be able to spend a number of days or even weeks in condensaries experiencing trouble with sterilization and study the conditions not only of their plants but of the milk arriving from the producer and if necessary of the farms from which the milk was produced. In this way it was hoped to trace the bacteria causing the trouble back to their source and show what precautions should be taken to exclude them from the milk.

Careful Study of Bacteria in Canned Products

A beginning of this work has been made in some canned products, and the results obtained show the importance extending it rapidly to other fields of the industry. However, we have no results of this kind as applied to

evaporated milk. But we know that bacteria forming resistant spores are frequently found in the soil, as well as in manure, hay and straw. In the absence of evidence regarding the source of such bacteria in evaporated milk, therefore, we naturally form the hypothesis that they may come from the lack of the proper sanitary precautions in the condensing plant, or, more probably, from the lack of cleanliness in milking the cows or in caring for the utensils in which the milk is collected and carried to the plant. Until we have further information on this subject, therefore, we can only suggest that where spoilage occurs from bacteria of unusual resistance a careful survey should be made of the condensing plant, and especially of the farms producing the raw product.

At the last meeting of the milk section, I discussed the frequency of spoilage in evaporated milk from bacteria of such resistance that they were not destroyed by the ordinary process. I stated then that a number of such cases of spoilage had been referred to the laboratory and that from such milk we had isolated five or six distinct kinds of resistant bacteria. From this I drew the conclusion that the presence of such bacteria was not uncommon in the

HIGHER TEMPERATURES ADVISED

Notable in this first installment of Dr. Bigelow's findings in connection with the investigations on milk and pea canning by the National Cannery Association are his conclusions regarding the desirability of higher temperatures in processing.

Says Dr. Bigelow:

"The process man must determine the temperature his milk will stand. He must know by experience and by test runs the treatment that is necessary to give the body desired. I do wish, however, to point out as emphatically as I can the value of sterilizing at as high a temperature as the milk will stand. It is probable that many manufacturers could use a temperature at least two or three degrees higher than they are now using."

* This is the first installment of a series of two articles by Dr. Bigelow on the results of his investigations for the National Cannery Association. It was read before the milk section of that association during its convention at Louisville, January 19.

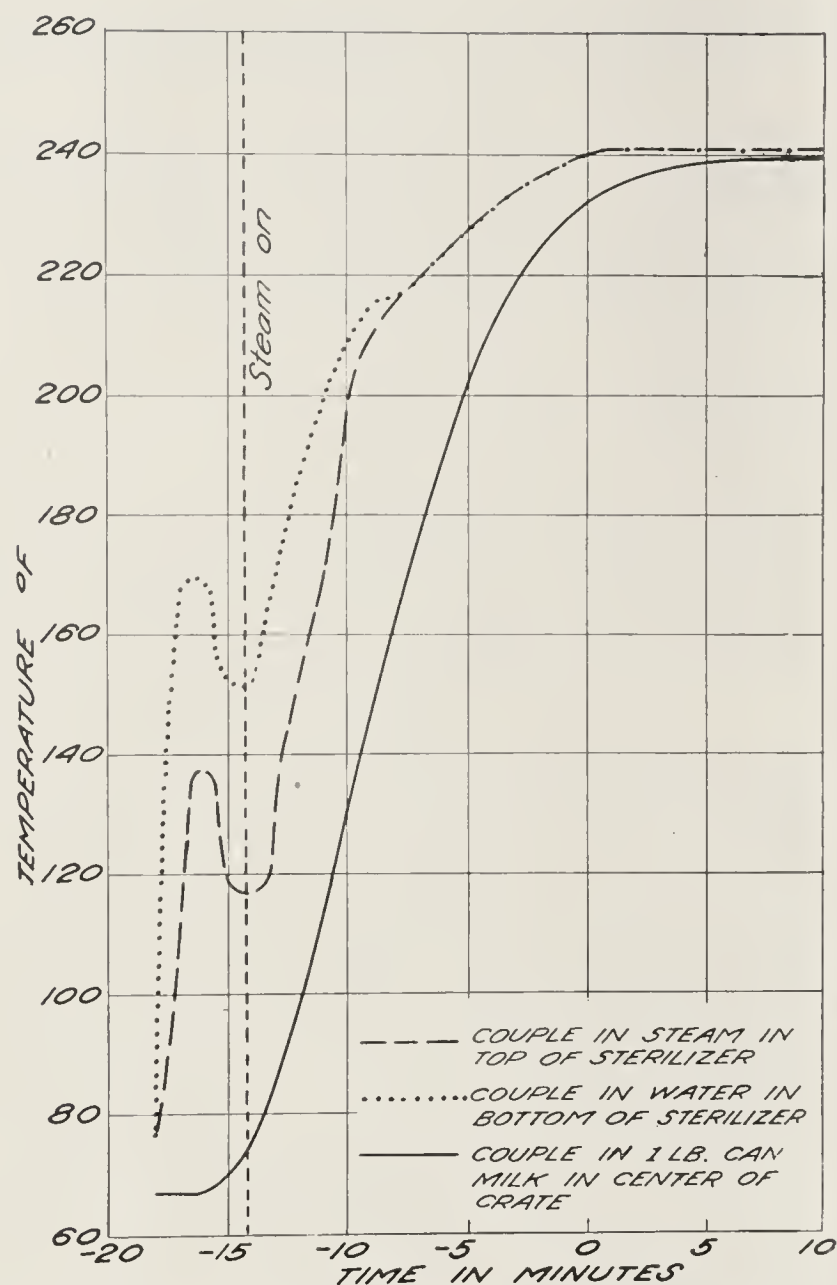


FIG. 1 - MILK IN 1 LB. CANS - ROTATED 8 R.P.M.
CRATE FILLED WITH 1 LB. CANS WATER

raw product used for the manufacture of evaporated milk.

Since that time our experience in this matter has been considerably extended, and many more cases of such spoilage have been studied, and still other kinds of resistant bacteria have been isolated. Some of these bacteria belong to the class known as thermophiles (heat-loving); that is, they grow best at temperatures which would destroy most bacteria, and they only grow at temperatures higher than those required by other bacteria. For instance, at temperatures below 100 degrees F., thermophilic bacteria either do not grow or grow so slowly as not to cause spoilage within less than two or three years. The spoilage of evaporated milk is also sometimes caused by bacteria which grow readily at ordinary storage temperatures.

Spoilage Resulting from Inadequate Sterilization

When the sterilizing process has been insufficient, therefore, it is possible that spoilage may begin at once and be evident before the time comes to ship the product. On the other hand, it may develop slowly, and cases have been known where the milk remained in good condition for more than a year after being canned and then spoiled in the hands of the dealers.

There are many kinds of these resistant bacteria which have from time to time caused spoilage in evaporated milk. They work in different kinds. Some of them produce gas, causing the cans to swell and sometimes to burst. Others produce acid, making the milk turn sour. Still others produce a bitter flavor in the milk, which often develops a number of weeks after processing. These bacteria resemble each other only in the fact that they are unusually resistant to heat. They are evidently widely distributed, and spoilage caused by them has occurred in all sections of the country. I believe that the frequency with which such spoilage occurs is not fully appreciated in the industry.

The fact that it occurs from time to time would seem to indicate that until it is fully understood, there is always danger of such spoilage reaching larger proportions than has yet been the case. The matter should be taken seriously, therefore, and all possible precautions should be taken. At any rate I wish to bring urgently to your attention the importance of approaching as nearly as possible to the sterilizing processes I have suggested. The increase in sterilizing efficiency caused by raising the process a single degree must not be overlooked. Not only should the process temperature be made as high as possible, but processors should be cautioned that fluctuations in process temperature should be above rather than below the designated temperature. For instance, if a process temperature of 240 degrees has been adopted, and there is a variation of 1 degree in temperature during processing, an attempt should be made to hold the minimum temperature at 240 degrees, so that the range will be from 240 degrees to 241 degrees, rather than from 239 degrees to 240 degrees. Attention to such details will probably have little influence on the physical appearance of the milk and will add distinctly to the sterilizing efficiency of the process.

Bacteria Vary Greatly in Resistance

We are frequently asked what temperature and time of process would be necessary to destroy resistant bacteria in evaporated milk and thus relieve the manufacturer of the occasional spoilage referred to above. This question is difficult to answer, because the bacteria causing the various cases of spoilage we have studied vary widely in their resistance to heat. Moreover, the time and temperature necessary for their destruction depends among other things on the number of such bacteria in the milk. For instance, if the milk contained several thousand spores of resistant bacteria per cubic centimeter, a higher temperature or longer

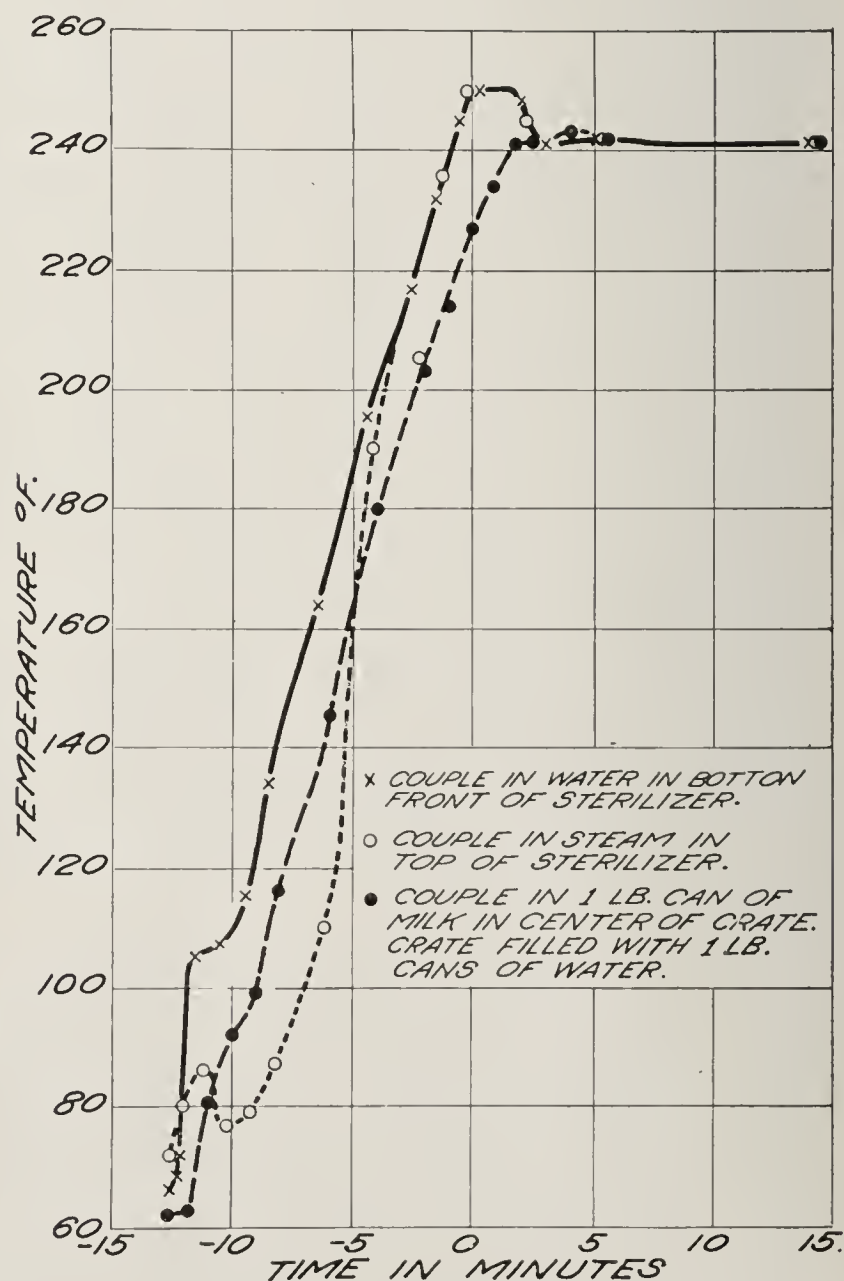


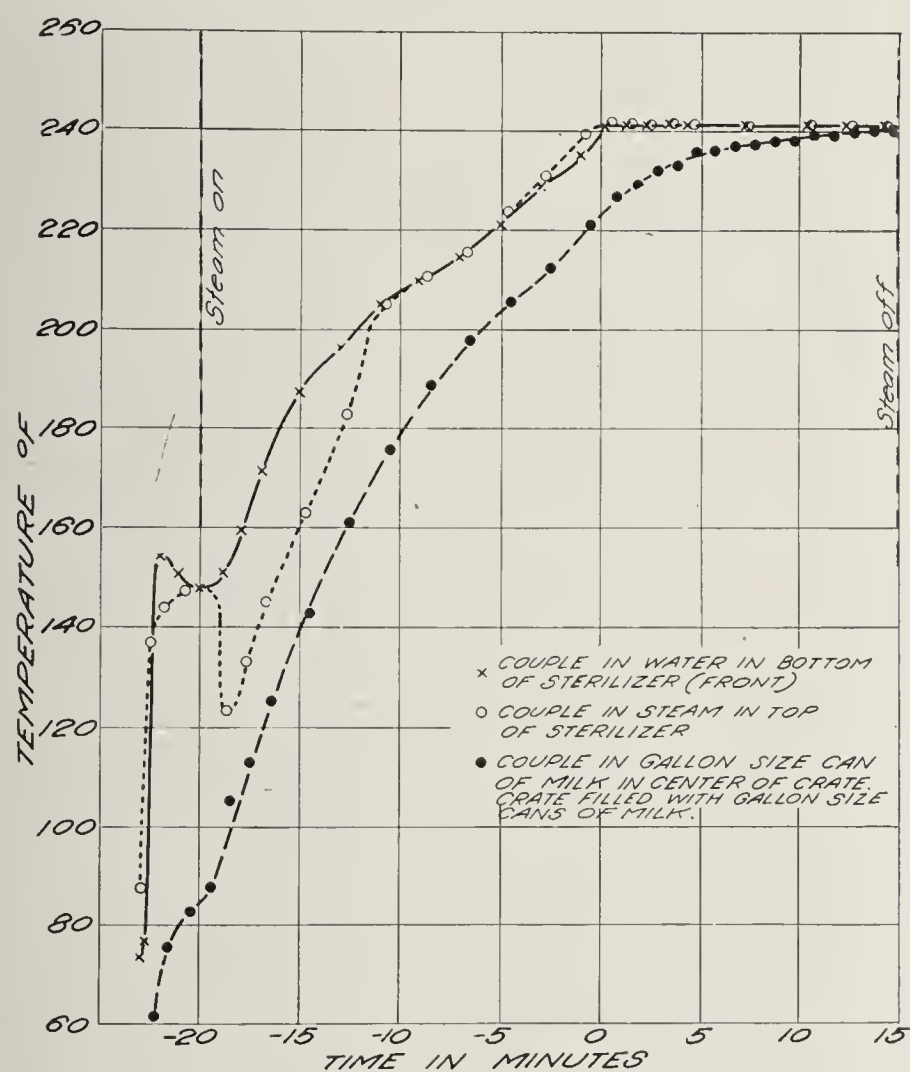
FIG. 2 - EVAPORATED MILK IN 1 LB. CANS
5 R.P.M.

time of sterilization is necessary then if only ten or twenty such spores are present.

We have taken as a type, however, one of the most resistant of the bacteria which we have known to cause spoilage in milk and have made a calculation of the time necessary at various sterilizer temperatures to sterilize evaporated milk containing 3500 spores of this bacterium per cubic centimeter. It must be understood that the results obtained in this way are tentative. Data on which such calculations must be based are obtained slowly and with difficulty and require ample confirmation. It is probable that as we obtain new information on this subject we will want to modify to some extent the figures I am giving. At the same time, it is believed that these figures are approximately right; that at least they are sufficiently accurate to warrant putting them out at this time in a tentative way.

Charts Show Relative Efficiency in Different Methods

It is believed that the relations shown in these charts regarding the relative efficiency of different methods of sterilizer management and of different sterilizer temperatures are substantially correct. The process times suggested below are probably extreme. The number of resistant bacteria assumed to be present (3500 per cubic centimeter) is probably excessive. It is further assumed in making the calculations that the milk has a pH value of 6.0, whereas,



EVAPORATED MILK IN "GALLON" CANS - 5 R.P.M.

FIG 3

usually, it is appreciably more acid. Still, the conditions assumed are sometimes encountered, and the more nearly the process times suggested can be approached the less spoilage will result.

Figure 1 shows the temperature of the center of a one-pound can of milk sterilized in the usual way at 240 degrees and allowing 15 minutes to bring the sterilizer to that temperature. If the particular type of bacterium, I have mentioned were present in this milk in the quantity referred to above, a process time of 20 minutes would be necessary for sterilization at 240 degrees. Now if it were possible to process this milk at 250 degrees instead of 240 degrees, taking 15 minutes to bring the sterilizer to the temperature of 250 degrees, 6½ minutes would be suffi-

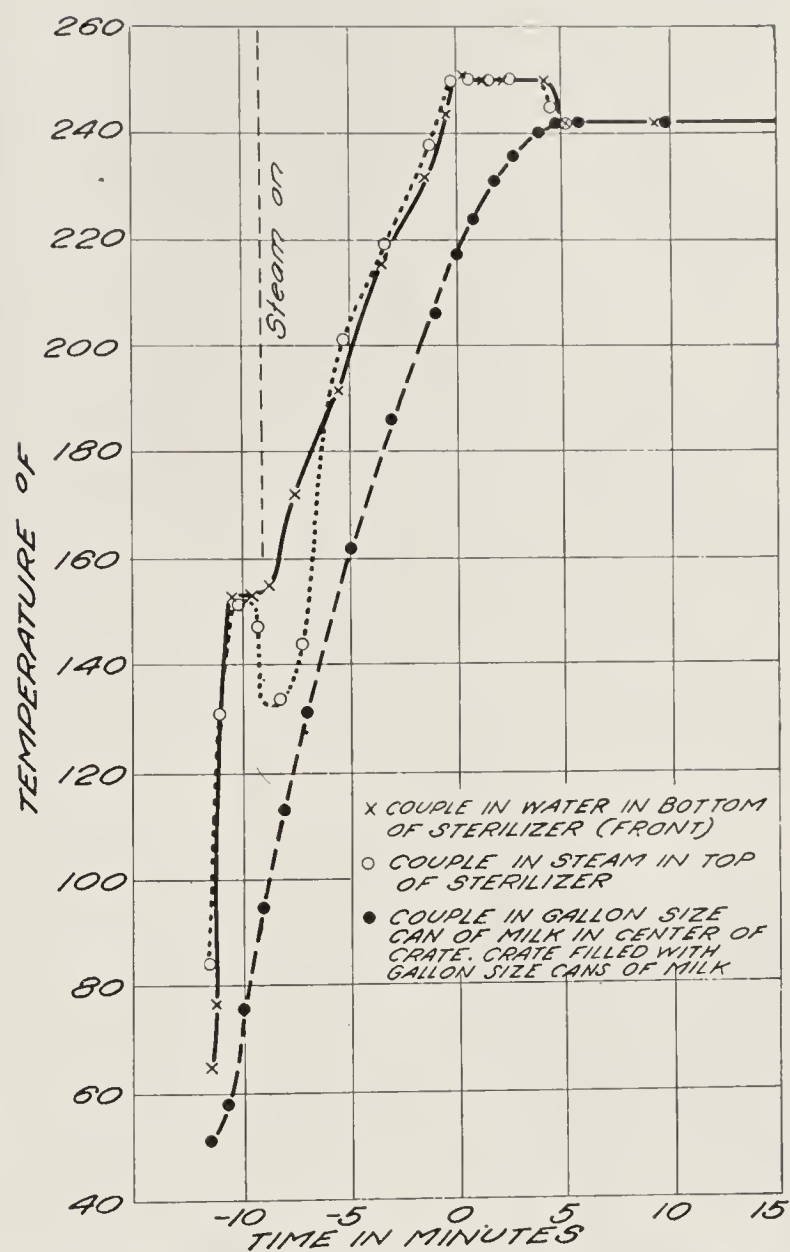


FIG. 4 - EVAPORATED MILK IN "GALLON" CANS 10 R.P.M.

cient for sterilizing. That is, with a one-pound can of milk processed under these conditions, 6½ minutes at the process temperature of 250 degrees is equivalent to 20 minutes with a process temperature of 240 degrees. With lower process temperatures, the time necessary for sterilizing increases in almost the same proportions. For instance, at 230 degrees a process of 58 minutes would be necessary.

Process of Rapid Heating of Sterilizer

During recent years some manufacturers of evaporated milk have found it advantageous to heat the sterilizer somewhat more rapidly than was previously their custom, and to a temperature 10 degrees above their sterilizer temperature, then "blowing off" the steam to sterilizing temperature.

For instance, if processing be 240 degrees, they heat the sterilizer to 250 degrees and hold it at 250 degrees until the temperature at the center of the can reaches 240 degrees. This is shown in figure 2, in which the sterilizer was heated to a temperature of 250 degrees in about 10 minutes and held at that temperature 2 minutes, at which time the temperature of the center of the can was found to be 242 degrees, at which the run was made. Working in this way (but processing at 240 degrees instead of 242 degrees, as shown in Figure 2), it was found that, in addition to heating the sterilizer to temperature in shorter time, about 2 minutes less sterilizing time after the sterilizer came to temperature was necessary than with the other method of operating.

Figures 3 and 4, respectively, are similar to figures 1 and 2, but apply to gallon milk. In figure 3, it will be noted that 20 minutes was taken to bring the sterilizer to a temperature of 240 degrees, at which time the temperature at the center of the can of milk was only a little over 220 degrees and only reached sterilizer temperature 15 minutes later. Operating in this way, a process time of 24 minutes would be necessary to destroy the spores of the resistant bac-

terium referred to above; while with the same procedure, but with a temperature of 250 degrees, only 10 minutes would be required.

On the other hand, if gallon milk were processed as shown in figure 4, the sterilizer being heated to 250 degree in 10 minutes and held at that temperature 5 minutes, the temperature of the center of the gallon can of milk would then be a little over 240 degrees. If now the sterilizer were "blown off" to a temperature of 240 degrees, a process time of only 17 minutes would be necessary for sterilization, 7 minutes less than the usual method, in addition to a shorter time being required in heating the sterilizer. If processing were done at 250 degrees by the method shown in figure 4, the sterilizer being first raised to 260 degrees and "blown off" for 5 minutes to 240 degrees, a process time of only 3½ minutes would be necessary for sterilization, about one-third of the time required at 240 degrees.

High Sterilizing Temperature Desirable

These curves illustrate forcefully the importance of using as high a sterilizing temperature as practicable. In one-pound cans, for instance, a process of 6½ minutes at 250 degrees is equivalent to 20 minutes at 240 degrees. In

gallon cans a process of 10 minutes at 250 degrees is equivalent to 24 minutes at 240 degrees. Even a variation of a single degree in process temperature makes an appreciable difference in the time necessary for sterilization. In order to destroy the spores of the particular bacterium we are discussing, for instance, at least 1 minute more is required with one-pound cans at 239 degrees than at 240 degrees. With gallon cans, the difference is over 2 minutes. This emphasizes the importance of having thermometers accurate and controlling process temperatures carefully.

In pointing out the greatly increased efficiency of high processing temperatures, I do not wish to be understood as arguing that a process temperature of 250 degrees is necessarily practicable with milk. The process man must, of course, determine the temperature his milk will stand. He must know by experience and by test runs the treatment that is necessary to give the body desired. I do wish, however, to point out as emphatically as I can the value of sterilizing at as high a temperature as the milk will stand. Some manufacturers are finding that they can sterilize at a temperature of 250 degrees without damage to the appearance of their product. It is probable that many could use a temperature at least two or three degrees higher than they are now using.

Movie Seeks to Overcome Prejudice Against Margarin



"Say it in movies"—is the method adopted by this margarin manufacturer in teaching the public his product's merits.

HOW one firm is helping to overcome the prejudice existing in the minds of many against margarin, and, incidentally, how it is advertising its own product, are indicated by an educational motion picture recently produced by E. A. Stevenson & Company, Inc., Boonton, N. J., with the co-operation of the Pathescope Company, New York. Several prints have already been made of the original film and the motion picture is being exhibited throughout the country by local Y. M. C. A.'s, community councils and other local institutions.

The "movie" takes the case of a typical housewife going to the grocery store and there being acquainted by the grocer with the merits of margarin. The grocer traces the making of margarin from the raw material stage through the successive stages of its manufacture and commercial preparation. He indicates how the three principal ingredients—cocoanuts, peanuts and milk—enter in the process and what sanitary conditions surround present-day manufacturing at every step in the course of its preparation down to placing it on the grocery shelves.

"Why should such a wholesome and economical food be treated so unfairly?" questions the housewife. "It's due to class legislation," states the grocer, "and the whole industry is oppressed with heavy taxes. The makers must each pay the Government \$600 a year and a tax of one-quarter cent on every pound made. The dealer must pay \$200 yearly just to carry it. No other civilized nation taxes any food product—and yet our Government and many of the states impose the most burden-

some tax on this whole industry."

"I call that persecution, and I think the public should know," declares the housewife—where the movie.

Commenting on the motion picture as a medium for educating the public to the value of a food product, Edward F. Stevenson stated that he believed there were great possibilities in this method. "In producing this picture, I can unhesitatingly say that our prime thought was of the industry that our firm represents. Naturally, of course, our product came in for some advertising. What is chiefly necessary today, however, for all manufacturers in the industry is an intelligent public appreciation of the merits of their product, and we believe that our movie has gone a long way in this direction.

"We have not hesitated to let the public see the various processes of manufacture. Too often individual manufacturers have clothed their operations with mystery, giving as their reason the fact that their processes were secret and were not to be made known for fear of competitors. This only served to make the public suspicious. Hence we have adopted the policy of opening all our doors and letting everybody see everything. There's nothing to hide. All should have an opportunity to see the sanitary and wholesome conditions under which margarin is made today."

The moving picture was made under the personal direction of Clinton F. Ivins of the Pathescope Company. The film has been printed on both Pathescope Safety Standard size and regular theatrical standard size film and is available for exhibition purposes to all parties interested.



All the processes of this margarin establishment are shown in this movie. Intelligent public opinion, say the makers, is worth more than secret processes.

FOOD LEGISLATION

Kentucky Bill Provides Regulations and Standards for Self Rising Flour, Certified Milk, Baking Powder and Ice Cream

A BILL to amend the food laws of Kentucky has been offered in the Senate of that state by Senator Bright and referred to the committee on university and normal schools. The measure establishes certain standards and regulations with regard particularly to certified milk, self-rising flour, baking powder and ice cream. A portion of the bill reads as follows:

§ 1. That it shall be unlawful for any person, persons, firm or corporation within this State to manufacture for sale, produce for sale, expose for sale, have in his or their possession for sale or to sell any article of food or drug which is adulterated or misbranded within the meaning of this act; and any person or persons, firm or corporation who shall manufacture for sale, expose for sale, have in his or their possession for sale or sell any article of food or drug which is adulterated or misbranded within the meaning of this act, shall be fined not less than ten dollars nor more than one hundred dollars, or be imprisoned not to exceed fifty days or both such fine and imprisonment; Provided, that no article of food or drug shall be deemed misbranded or adulterated within the provisions of this act when intended for shipment to any other State or country, when such article is not adulterated or misbranded in conflict with the laws of the United States; but if said article shall be in fact sold or offered for sale for domestic use or consumption within this State, then this proviso shall not exempt said article from the operations of any other provisions of this act.

§ 2. That the term food, as used in this act, shall include every article used for or entering into the composition of food or drink for man, including all liquors and confectionery.

§ 3. For the purpose of this act an article of food shall be deemed misbranded:

First. If the package or label shall bear any statement purporting to name any ingredient or substance as not being contained in such article, which statement shall not be true in any part; or any statement purporting to name the substances of which such article is made, which statement shall not give fully the name or names of all substances contained in any measurable quantity.

Second. If it is labeled or branded in imitation of or sold under the name of another article, or is an imitation either in package or label of another substance of a previously established name; or if it be labeled or branded so as to deceive or mislead the purchaser or consumer with respect to where the article was made or as to its true nature and substance, or as to any identifying term whatsoever, whereby the purchaser or consumer might suppose the article to possess any property or degree of purity or quality which the article does not possess.

Third. If in the case of certified milk, it be sold as, or labeled "certified milk," and it has not been so certified under rules and regulations by any county medical society, or if when so certified it is not up to that degree of purity and quality necessary for infant feeding.

Fourth. If it be misrepresented as to weight or measure or, if where the length of time the product has been ripened, aged or stored or if where the length of time it has been kept in tin or other receptacle tends to render the article unwholesome, the facts of such excessive storage, ripening, aging or packing are not plainly made known to the purchaser and to the consumer.

Fifth. If the package containing it or its label shall bear any statement, design, or device regarding the ingredients or the substance contained therein, which statement, design or device shall be false or misleading in any particular. Provided, that articles of liquor which do not contain any added poisonous or deleterious ingredients shall not be deemed to be adulterated or misbranded within the provisions of this act; in the case of articles labeled, branded or tagged so as to plainly indicate that they are compounds, imitations, or blends, and the word "compound," "imitation," or "blend,"

as the case may be, is plainly stated on the package in which it is offered for sale. Provided, that the term blend as used herein shall be construed to mean a mixture of like substances, not excluding harmless coloring and flavoring ingredients used for the purpose of coloring and flavoring only.

Sixth. If in package form, the quantity of the contents be not plainly and conspicuously marked on the outside of the package in terms of weight, measure or numerical count. Provided, however, that reasonable variations shall be permitted, and tolerances and also exemptions as to small packages shall be established.

§ 4. For the purpose of this act, an article of food shall be deemed to be adulterated:

First. If any substance or substances be mixed or packed with it so as to reduce, lower or injuriously affect its quality or strength.

Second. If any substance be substituted wholly or in part for the article, so as to reduce, lower or injuriously affect its quality or strength.

Third. If any valuable constituent of the article has been wholly or in part abstracted; or if the product is below that standard of quality represented to the purchaser or consumer.

Fourth. If it is mixed, colored, coated, polished, powdered, or stained whereby damage is concealed, or if it is made to appear better or of greater value than it is, or if it is colored or flavored in imitation of the genuine color or flavor or another substance of a previously established name.

Fifth. If it contains added poisonous ingredients which may render such article injurious to health, or if it contains any antiseptic or preservative which may render such article injurious to health, or any other antiseptic or preservative not evident or not plainly stated on the main label of the package.

Sixth. If it consists of or is manufactured from in whole or in part of a diseased, contaminated, filthy or decomposed substance, either animal or vegetable, unfit for food, or an animal or vegetable substance produced, stored, transported or kept in a condition that would render the article diseased, contaminated or unwholesome, or if it is any part the product of a diseased animal, or the product of an animal that has died otherwise than by slaughter, or that has been fed upon the offal from a slaughterhouse, or if it is the milk from an animal fed upon a substance unfit for food for dairy animals or from an animal kept and milked in a filthy or a contaminated stable or in surroundings that would render the milk contaminated. Provided, that any article of food which may be adulterated and not misbranded within the meaning of this act, and which does not contain added poisonous or deleterious ingredients and which is not otherwise adulterated within the meaning of paragraphs four, five and six of Section 4 of this act, or which does not contain any filler or ingredient which debase without adding food value, can be manufactured or sold, if the same be labeled, branded, or tagged so as to show the exact character thereof. And all such labels and all labeling of packages provided for in any provisions of this act shall be on the main label of each package and in such position and character of type and terms as will be plainly seen, read and understood by the purchaser or consumer. Provided, further, that nothing in this act shall be construed as requiring or compelling the proprietors, manufacturers, or sellers of proprietary foods which contain no unwholesome substance or ingredients to disclose their trade formulae except in so far as the provisions of this act require to secure freedom from adulteration, imitation or misbranding. But in the case of baking powders, every can or other package, shall be labeled so as to show clearly the name of the acid salt, which shall be plainly stated on the face of the label to show whether such salt is cream of tartar, phosphate or alum. Provided, further, that nothing in this act shall be construed to prohibit the manufacture or sale of colored oleomargarine, butterine, or kindred compounds in a separate and distinct form and labeled in such manner as will advise the consumer of the real character thereof, provided the coloring matter or in-

gredients used in coloring same is harmless, not poisonous and not deleterious to health.

§ 5. Mixtures or compounds of wheat flour and leavening ingredients manufactured or sold as self rising flour or by any other name shall be deemed to be adulterated if it fails to conform to the following standard of purity and strength, to-wit:

Self rising flour is composed of flour, salt and chemical leavening agents. The flour is of the grade of "straight" or better. These chemical leavening agents are bi-carbonate of soda and calcium acid, phosphate, sodium aluminum sulphate, cream of tartar, tartaric acid, or combinations of the same, to produce when sold for use not less than one-half of one per cent by weight available carbon dioxide gas; and,

1. The names of each of the chemical ingredients added to said flour by the manufacturer shall be plainly and conspicuously declared upon the front of the label or package, and the proportion of calcium sulphate contained in said chemical ingredients shall be declared in terms of percentage by weight of the acid ingredients.

2. There shall not be contained in any self rising flour a total of more than 3.5 per cent of chemical leavening ingredients.

§ 6. That, for the purpose of this act, condensed, evaporated and concentrated milk is defined as the product resulting from the elimination of a considerable portion of the water from the fresh, clean lacteal secretion, colostrum free, obtained by the complete milking of cows, properly fed and kept. Said product to contain when made from whole milk, without added sugars, all tolerances allowed, at least twenty-five and five-tenths per centum (25.5%) of milk solids, including at least seven and eight-tenths per centum (7.8%) of milk fat; when made from whole milk with added sugars, all tolerances allowed, at least twenty-eight per centum (28%) of milk solids, including at least eight per centum (8%) of milk fat, and when made from skimmed milk to contain, all tolerances allowed, at least twenty per centum (20%) of milk solids.

§ 7. That for the purpose of this act ice cream is hereby defined and standardized:

First. Ice cream is a frozen food product, varied as to kind and proportion of ingredients, within the limits established by custom and usage.

Second. Ice cream consists chiefly of a sweetened and flavored mixture of cream, or cream and milk, with or without added milk fat in the form of sound sweet butter; or as contained in condensed, evaporated, or concentrated milk, or in milk powder, and with or without added milk solids, not fat in the form of skim milk powder or as contained in milk powder, or in condensed, evaporated, or concentrated skim milk; or of a sweetened and flavored homogenized or emulsified mixture of sound sweet butter, milk powder, or skim milk powder and water, with the addition of gelatin, vegetable gums, or other wholesome stabilizer.

Third. Ice cream to be sold under said name shall not contain less than ten (10) per cent milk fat, and the content of milk fat and milk solids not fat, combined shall not be less than eighteen (18) per cent, except that when the ingredients of ice cream include eggs, fruit or fruit juice, cake, confection, cocoa or chocolate or nuts, such reduction of the percentage of milk fat and milk solids not fat, as may be due to the addition of such ingredients, shall be allowed, but in no case shall the butter fat content be less than eight (8) per cent.

§ 8. That for the purpose of this act ice cream shall be deemed to be adulterated:

First. If in quality or grade per quart it is lower than the professed standard of quality or grade per quart under which it is sold or offered for sale.

Second. If it contains any added poisonous or other deleterious ingredients which may render such ice cream injurious to health.

Third. If it contains any rancid or renovated or process butter, or any fat or oil other than milk fat and the fat or oil of contained eggs and nuts and the fat or oil of substances used for flavoring purposes only.

Fourth. If it contains in whole or in part any filthy or decomposed substance which may render such ice cream injurious to health, or is otherwise so contaminated that such ice cream is injurious to health.

§ 9. That for the purpose of this act ice cream shall be deemed to be misbranded.

First. If the label, brand, tag, or notice under which it is sold or offered for sale, is false or misleading in any particular as to the kind, grade, or quality, or composition of

such ice cream; or if any notice to the purchaser required by this act to be given is omitted.

Second. If it is sold or offered for sale as the product of one manufacturer when in reality it is the product of another manufacturer; or if on the label, brand, tag, or notice under which it is sold or offered for sale there is any false statement concerning the sanitary condition under which such ice cream is manufactured.

§ 10. It shall be unlawful for any person, firm, or body corporate, by himself, herself, itself or themselves, or by his, her, its, or their agents, servants or employees, to manufacture, sell or exchange, or have in possession with intent to sell or exchange, any condensed, evaporated or concentrated milk, which shall not conform at least to the minimum standard set forth respectively in Section six hereof, and which if contained in hermetically sealed cans does not bear stamped or labeled thereon the name and address of the manufacturer or distributor thereof.

It shall be unlawful for any person, firm or body corporate by himself, herself, itself or themselves, or by his, her, its, or their agents, servants, or employees, to manufacture, sell or exchange, or have in possession with intent to sell or exchange, any milk, cream, skimmed milk, condensed, evaporated or concentrated milk, powdered, dried or dessicated milk, or ice cream, or any of the fluid derivatives of any of them, to or with which, has been added, blended, or compounded any fats or oils, other than milk fats, either under the name of said products or articles, or under any fictitious or trade names whatsoever; provided, however, that nothing in this act shall be construed to prohibit in the manufacture of ice cream, the use of fresh eggs and not exceeding one-half of one per centum of pure gelatin gum tragacanth or other vegetable gums, or the sale, exposure for sale, and having in possession with intent to sell, ice cream so manufactured.

§ 11. It shall be unlawful for any person, firm, or body corporate by himself, herself, itself, or themselves, or by his, her, its, or their agents, servants, or employees, to sell or exchange or expose for sale or exchange or have in possession with intent to sell or exchange any condensed, evaporated, or concentrated, powdered, dried or dessicated skimmed milk, unless each container shall bear the name and address of the manufacturer or distributor, distinctly branded, indented, labeled or printed thereon, together with the words "condensed skimmed milk," or "dried skimmed milk," or "powdered skimmed milk," as the case may be in Roman letters of a size at least as large as any other words or letters appearing on said brand, indentation or label.

§ 12. Any person who shall violate any of the provisions of this act shall be deemed guilty of a misdemeanor, and any person so offending, whether individually or as a member of a partnership, or as a responsible agent or officer of a corporate body, who shall be convicted of such violation, either on his own behalf or in the interest of a corporate body, shall, for the first offense, be punished as provided in the first section of this act, and for the second offense, such person shall be subject to a fine of not less than one hundred dollars (\$100.00) and not more than one thousand dollars (\$1,000.00), or be imprisoned in the county jail for not less than three and not more than twelve months, or be both so fined and imprisoned; and for the third or any subsequent offense, such person shall be subject to fine or imprisonment, or both, as hereinabove provided for a second offense, and, in addition thereto, shall have his, her, or its license or permit to do business revoked.

Self Rising Flour Bill Introduced in Mississippi

Representative Currie has introduced in the Legislature of Mississippi a bill to regulate the sale of self rising flour which is known as House Bill No. 381. The measure provides for certain standards of manufacture and labeling. It is declared that the names of the ingredients shall be plainly stated on the label on the package and that the proportion of calcium phosphate contained shall be stated in terms of percentage by weight of the total ingredients. The text of the bill follows:

An Act defining "self rising flour" and regulating the manufacture and sale of "self rising flour."

Section 1.—Be it enacted by the Legislature of the State of Mississippi: That it shall be unlawful for any person, persons, firm or corporation, within this State to manufacture for sale, produce for sale, expose for sale, have in his or their possession for sale, or sell, any self rising flour

which does not comply with the requirements for purity and strength, as provided in Section 2 of this Act, or which is not labeled as provided in Section 2 of this Act, and any person, persons, firm or corporation, who shall manufacture for sale, produce for sale, expose for sale, or have in his or their possession for sale, or sell, any self rising flour which does not comply with the requirements of purity or strength, as provided in Section 2 of this Act, or which is not labeled, as provided in Section 2 of this Act, shall be guilty of a misdemeanor, and, upon conviction thereof, shall be fined not less than Twenty-Five (\$25.00) dollars, nor more than Five Hundred (\$500.00) dollars, or be imprisoned not to exceed ninety days, or both such fine and imprisonment.

Section 2. That for the purposes of this Act, self rising flour shall be a combination of flour, salt and chemical leavening agents. The flour shall be wheat flour of the grade "straight" or better. The chemical leavening agents shall be bicarbonate of soda and either calcium acid phosphate, sodium aluminum sulphate, cream of tartar, tartaric acid, or combinations of these. Self rising flour shall produce when sold for use, not less than one-half of one per cent by weight of available carbon dioxide gas. The name and address of the manufacturer or dealer, and the names of the chemical ingredients added to said flour by the manufacturer shall be plainly and conspicuously declared on the front of the label or package; and the proportion of calcium sulphate contained in said chemical ingredients shall also be declared in terms of percentage by weight of the acid ingredients. Self rising flour shall not contain more than 3.5 per cent of chemical leavening ingredients.

Section 3. That the State Chemist is hereby charged with the proper enforcement of this Act.

Section 4. That all laws and parts of laws in conflict with this act be and the same are hereby repealed.

Hearing on New York Skimmed Milk Bill

A hearing was recently held at Albany, N. Y., on the Ferris-Witter skimmed milk bill, which has been introduced in the New York State Legislature. The bill provides new regulations for branding skimmed or filled, evaporated or condensed milk and has been referred to the committee on agriculture of the Assembly, which called the hearing. Supporters of the bill were led by Byrne A. Pyrke, Commissioner of Farms and Markets, and included representatives of the Dairymen's League and other dairy interests. Mrs. Laura A. Cauble, representing the bureau of nutrition of the Dairymen's League, and Albert Manning, chairman of the Agricultural Conference Board of New York State, spoke in favor of the measure. O. R. McKee, representing a condensed milk manufacturer, opposed the measure.

Hearings on Soft Tax Bill in South Carolina

Following a hearing on the soft drink tax bill recently introduced in the Legislature of South Carolina, the ways and means committee of the House, recommended a reduction in the proposed tax on sirup of from 25 to 10 cents per gallon. This recommendation was accepted by the House. When the bill reached the finance committee of the Senate an unfavorable report on the whole bill was returned and the bill was defeated when it came up for a vote. However, the chairman of the committee, who favored the measure, resigned. The result was that the bill was re-committed and a second hearing is scheduled.

FOOD CONTROL MATTERS

Labeling of Vinegar Made From Evaporated Apples

The decision temporarily permitting the use of the unqualified term "apple vinegar" on a product made from evaporated apples or evaporated apple products, was recently revoked by the Department of Agriculture. Under this decision, published in September 12, 1921, the Department of Agriculture announced that no seizures would be made of shipments interstate of vinegar made from evaporated apple material if labeled "apple vinegar," pending a decision by the courts of cases already instituted on the shipment and sale of this product labeled as "apple cider vinegar."

Since that announcement the court has held that vinegar made from evaporated apple products is misbranded if labeled as "cider vinegar" or "apple cider vinegar." It is the opinion of the department, after careful consideration of the entire question, that the term "apple vinegar" is very generally understood by the consuming public to mean a product made by alcoholic and subsequent acetous fermentations of the juice of fresh apples, and is therefore regarded as synonymous with the terms "cider vinegar" and "apple cider vinegar."

A vinegar made from evaporated apples or evaporated apple products will therefore be considered misbranded if labeled as "apple vinegar" without further qualification. Such a product, if properly made, is held to be a pure and wholesome article of food, but it should be sold under a label clearly distinguishing it from the product made from the juice of fresh apples, such, for example, as, "evaporated apple vinegar." The decision temporarily permitting the use of the unqualified term "apple vinegar" on a product made from evaporated apples or evaporated apple products, published September 12, 1921, is hereby revoked.

New Illinois Vinegar Ruling

Food Commissioner A. H. Jones of Illinois, has issued a ruling requiring the names "cores," "skins," "pomace," "trimmings," or "dried apples," according to material used, to be shown on the labels of vinegar made from other sources than apple cider.

Violations of New York Food Laws

A statement issued by Commissioner Byrne A. Pyrke of the New York Department of Farms and Markets, shows that retailers and manufacturers have paid during the year 1921 \$5,186.87 in penalties for violations of the New York State Food Law. These penalties resulted from 175 cases reported with nearly 300 cases awaiting disposition.

Inspectors of the department made a total of 12,885 store inspections and submitted to the laboratory for analysis 1,997 food samples. The violations reported consisted mainly of improper branding of food commodities and improper marking of cold storage eggs.

Dr. W. W. Skinner, Chairman of Food Standards Committee

Dr. W. W. Skinner, assistant chief of the Bureau of Chemistry, was elected chairman of the joint committee on definitions and standards for foods at the last meeting of that committee. This committee is charged with the duty of formulating standards and definitions for the guidance of Federal, state and municipal food officials in enforcing Federal and state legislation. It is composed of three representatives each from the Association of American Dairy and Food Officials, the Association of Official Agricultural Chemists, and the United States Department of Agriculture.

Pennsylvania Bureau of Foods Reviews Activities

The annual report of the Bureau of Foods, Pennsylvania Department of Agriculture, submitted by Director James Foust to Secretary of Agriculture Fred Rasmussen, shows the vast amount of work that was required to protect the people of Pennsylvania in 1921 from the dangers of impure foods and beverages.

In 1920 the bureau expended \$102,284.45, while last year the expenditures were reduced to \$91,894.73. The report indicates that each year since the inception of the Bureau of Foods, the number of analyses of the food and drinks of the state have been practically the same. Thus in 1907 there were 7,400 samples analyzed by the bureau chemists, while last year there were 7,422 samples collected and analyzed.

WHAT OUR READERS SAY

Editor's Note: Readers of *The American Food Journal* are invited to make this Department an Open Forum for the discussion of any subject of interest to the food trades.

The Problem of Bleached and Self-Rising Flour

EDITOR, *The American Food Journal*:

As practically all brands of self-rising flours sold in the South are bleached, the two problems i. e., that of bleached and that of self-rising flours become closely related, if not identical. The self-rising flour manufacturers claim that there are more than 10,000,000 barrels of self-rising flour consumed in the Southeast annually. Has anything been done to control this food product? Does anyone definitely know anything about its nutritive value? What inspector is able to attest anything as to its purity, strength, or food-value?

It is conceivable that a perfectly wholesome product of the kind could be made and placed on the market, if high grade wheat were used, and if the leavening agents were of high degree of purity, and added in such amounts as were mathematically correct to produce a light dough and yet leave no excess of alkali after the chemical action ceases. But if these products are always so carefully prepared and of good quality of materials, then why should the flour be so generally a bleached flour, and why does the manufacturer not at once allay all suspicion by plainly stating on the label just what ingredients enter into the product? Baking powders are now so standardized that it is possible for the housewife to read from the label just what ingredients are present in each brand, no matter which one she chooses to use.

There are at hand two general formulae for manufacture of self-rising flour. One calls for soda, 3 pounds per 200 pound barrel of flour, 3.75 pounds of phosphate, and salt, 3.75 pounds. This may be purchased at a cost of \$0.25 per formula. To quote from one miller, "Self-rising flour is almost universally sold by the millers to jobbers at \$0.25 per barrel over plain flour, showing them a handsome profit in addition to profit on the flour itself; and a few with well advertised brands get \$0.50 per barrel over the cost of plain flour."

Regulations on Bleaching

Federal food laws do not prohibit bleaching, if the fact is plainly stated on the label, unless it can be shown that the purpose is to conceal inferiority or in any way to defraud, or unless there can be shown to be harmful products remaining as the result of the bleaching process. Many states follow the Federal law in this respect. Practically every method of bleaching liberates nitrous fumes in the flour which can be easily detected by chemical test, both before and after baking the flour into biscuits. Certainly with the use of these products already markedly increased and constantly growing more prevalent, it should be ascertained whether or not injurious substances are left in the flour.

There is a growing market for self-rising flours in the Southeast. One large wholesale grocer in Tennessee reports the sale of 180 pounds per day. A salesman in Atlanta reported that out of a sale of four hundred barrels of flour in one day, 350 were self-rising. In one instance a flour salesman had booked up 30,000 barrels of self-rising flour for Georgia and Florida in one month. In the city of Tallahassee, Florida, it has been impossible to secure a single pound of unbleached flour, in the last five months, from any store or wholesale grocer handling flour. The grocery men report that there is no demand for plain unbleached flour, and a lot of one brand had to be thrown away by one firm because it could not be sold. There is a theory, which is pretty well established, that the process of bleaching is injurious to the vitamin content of foods in general, so that a bleached product should not be given the same rank as a source of nourishment, which would be accorded to an unbleached product.

A questionnaire sent out to state health officials brought several interesting replies. Among other things, it was learned that the sale of bleached flour is prohibited by laws of three states, i. e., Pennsylvania, North Dakota and Wisconsin. Many of the food officials stated in their replies that they were suspicious of the wholesomeness of bleached flours, but were in such a position as to be able to do nothing about the matter at present. There is needed a campaign of research, investigation, education and legislation on this subject, to indicate what may be expected in the nutritive value of such products, and some regulations for standardization, in order to protect the honest miller from fraudulent competition as well as to eradicate wrong, dishonest practices from the trade. The public has a right to know what are the ingredients of this product as well as other food products.

As a matter of information, it may be mentioned that Minnesota does not require that the leavening agents be a part of the label, as the term "self-rising" is held to be indicative of the presence of such substances. All that is required on a flour compound is a statement of the cereals present, "in order of their predominance." Iowa, on the other hand, requires a list of ingredients in self-rising flour to be "printed on the label." No complaint against either class of flour is made in these two states and no legislation on the subject is contemplated. The Mississippi law provides that any food product that can be sold under the Federal Food and Drugs Act "may be marketed in Mississippi, and the entry of self-rising flour into interstate commerce is not inhibited. Bleached flour may be sold if plainly branded so as to indicate bleaching." The officials of Texas hold similar views. They say: "The question of bleached flour has frequently been agitated in this state. We have generally been under the impression that such matters should be regulated by Federal enactments before attempting to pass any state law. In the matter of food products, in order not to discriminate against our local producer it is a matter of importance that all laws affecting these products be uniform in purpose." In Indiana, the sale of "self-rising flour is not prohibited but the label must show the nature of the product."

Movement Against Bleached Flour

Among the states whose officials expressed an interest in the prohibition of the sale of bleached flour, were the following: Connecticut, Arkansas, California, and those representing the states in which the sale of bleached flour is illegal, i. e., Wisconsin, Pennsylvania, and North Dakota. On the contrary it was the opinion of the official in South Dakota that "any legislation aiming to prohibit entirely or limit the sale of flour which has been bleached is unwise." The two Dakotas are thus seen to be of diametrically opposed views on this subject. However, the South Dakota people are said to use very little self-rising flour except in the form of mixtures such as pancake flour. All such mixtures are required by the laws of South Dakota to "be labeled to show the ingredients of which they are composed."

If the flours are to be allowed to be bleached, then the millers of the states in which this practice is illegal are put at a disadvantage in competing with those of other states. The Southeastern Millers' Association states that the prejudice against self-rising flour has been created to some extent through the attempts of the baking powder manufacturers to discredit it. This organization is authority for the statement that self-rising flour is an economical method of buying flour, and the claim is further made that it saves the housewife \$3.75 per barrel. They estimate that more than 5,000,000 barrels of self-rising flour are sold in the South

annually. "This effects a saving of more than \$15,000,000 per annum to the southern consumer."

Wholesomeness Tested by Animal Experimentation

Is it possible that the southern consumer is saving dollars at the expense of health? Some would have us believe that this is the situation. The whole problem of wholesomeness of these products must soon be tested out by means of animal experimentation. There is no other way of securing such reliable and unbiased evidence for or against any food as the feeding of it, to experimental albino rats. There has been started a series of experiments in a laboratory under the author's direction. We hope that other nutrition workers will undertake the study of this problem. If bleaching of flour is innocuous, let us learn it definitely and so be rid of the fear of using or recommending for use the bakery products into which such flours have entered.

A list of the states whose officials expressed no interest or concern in regard to legislation on the subject of the "self-starters," and "lily-whites," may give some indication as to where evidence may be obtained in favor of the wholesomeness of these products. They include those from whom we have received replies up to date, as follows: Indiana, Kentucky, Iowa, Texas, South Dakota, Mississippi, Minnesota, Oklahoma, Massachusetts, Alabama, Tennessee, Maryland, Kansas, New Jersey, Virginia, Vermont, Nebraska, Wyoming, Colorado, Nevada, Idaho, Oregon, Illinois, Maine, New York, Washington, Montana. This does not by any means indicate that these products are considered harmless, but that the Federal law has been followed, which simply requires the word "bleached" to appear on the label. The commissioner for Connecticut writes that there is no special legislation in that state on the subject, but that "personally he would prefer to see the bleaching of flour prohibited, but doubts if such a law could be passed in that state."

State Laws on Bleached Flours

In closing, let us take a look at the laws in those states which prohibit the sale of bleached flour. In section 4601f of the Wisconsin dairy and food laws, we find this statement: "It shall be unlawful to sell, offer or expose for sale or have in possession with intent to sell for use or consumption in this state, any flour that has been artificially bleached." Commissioner J. Q. Emery stated that this law was enacted about eleven years ago. Section two of the Pennsylvania General Food Act of May 13, 1909, defines food and includes flour; section three defines adulteration. Section 2, "The term 'food,' as used in this act, shall include not only every article used for food by man, but also every article used for, or entering into the composition of, or intended for use as an ingredient in the preparation of, food for man." Section 3, fourth clause: "An article of food shall be deemed adulterated if it be mixed, colored or changed in color, coated, polished, powdered, stained or bleached, whereby damage or inferiority is concealed, or so as to deceive or mislead the purchaser, etc." Fifth clause, "if it contains any added sulphurous acid, etc., or contains . . . oxides of nitrogen, nitrous acid or nitrates, or other added ingredients, deleterious to health." Ruling dated May 4, 1914, expressly prohibits the sale of bleached flour. "Under the specific language of the act of the commonwealth there is but one course to pursue, and that is to prosecute all manufacturers or dealers who manufacture or sell flour in Pennsylvania which contains nitrous acid or nitrites." Chlorine is also ruled out, by the decision in the Kevin case, since the Penn law states "or other added ingredient deleterious to health," the court held "that if the added substance is injurious to health in any quantity it cannot be used so the question of quantity is immaterial." The monthly bulletin of the Pennsylvania Department of Agriculture, Bureau of Foods, dated November, and December, 1919, is very enlightening on the subject of the physiological effect of nitrous acid fumes. Similarly, the North Dakota food law in clause two, section three declares foods which contain nitrous acid, etc., to be adulterated, and rulings of the court make the sale of bleached flour absolutely prohibited.

No southern state has yet adopted such legislation, but there are many officials who would look upon such a movement with favor. The condition in the South is well ex-

pressed by the state chemist of Georgia when he states that, "We are not in a wheat producing section of our country. It is not fair to our consumers to allow the manufacturers of another section the right to take a damaged or inferior grain, grind it, bleach it to such a grade that it could be sold for more money than it is really worth." The main objection to self-rising flours is the fact that the flour is not always of the highest grade, nor are the leavening ingredients always sufficiently proportioned. It is true that the keeping qualities of such flours are not as good as a straight flour. If the sale of bleached flour were prohibited, it would not deprive the consumer of anything in flavor or nutritive value in the flour, it would merely deprive the miller of an excellent opportunity to defraud the public, by selling them a damaged or inferior brand of flour, at a price which could be demanded for the highest grade."

In this as in other subjects which affect the nutrition of the people let us "educate and co-operate."

JUANITA E. DARRAH,
State Research Specialist in Nutrition,
Tallahassee, Fla.

Editor, The American Food Journal:

I am delighted to see The American Food Journal improving as it has been for some time and I hope all of the margarin manufacturers in the United States are subscribers to it. I was, of course, especially interested in the article on the Referee Reports on Milk Compounds in your February issue.

With best wishes, I am,

Yours truly,

J. S. ABBOTT,
Secretary, Institute of Margarin Manufacturers,
1212 Munsey Building, Washington, D. C.
February 27, 1922.

Butter Reaching "Normal Level"

Editor, The American Food Journal:

"Every cloud has a silver lining." This saying manifests itself more clearly every day. Our going has not been smooth the past year, but after every rain comes sunshine. We welcome creamery butter down to its rightful price level. It had to come—we knew it. With a 70-cent butter market margarin factories sprang up overnight. The operators of these plants had only one thought in mind, that of making money. They had no regard or respect for the industry of the product they made. But the day of reckoning has come! Any old thing would sell when butter was 70 cents a pound, but today it is a different story.

Thousands have been attracted by the recent declines in creamery butter and the free advertising enjoyed by the butter interests at the present time, is tremendous—but just one minute: we must stop thinking in terms of 1918, 19 and 20, and go back to 1915, 16 and 17. The spread today between our own product and fancy creamery is greater than at the same time in either of the latter three years. Don't think in terms of war-time butter prices! In 1917 everybody regarded 45 cents as high for butter—and it was, too. Today 45 cents represents just as much as 45 cents did in 1917. The public is slow to realize this.

Yours very truly,

W. C. CODLING,
Margarin Manager,
The Nucoa Butter Company.

February 14, 1922.

Likes Authoritative Articles

Dear Mr. Emery:

Thank you very much for your letter of January 9, and copy of the December issue of The American Food Journal.

Your publication, containing so many authoritative articles, is of very great interest to us.

Very truly,

BLANCHE M. DWYER,
Chicago Office Frank Presbrey Company,
Chicago, Ill.

January 23, 1922.

EDITORIAL

The Calder Bill Not Likely to Come Up at This Session of Congress

MORE than a year has elapsed since the food control officials' association, at its annual meeting in St. Louis, took definite steps towards setting in motion ways and means of obtaining uniformity in food laws. At the meeting of the same association last November in Miami, Florida, the question was again discussed, with the result that a motion was passed instructing the executive committee to carry out the wishes of the St. Louis convention in providing for uniformity.

As the matter stands at present there is but one definite proposal under consideration for food law uniformity, that being embodied in the Calder bill, which has been pending in Congress for some time. Most of the food control officials are greatly opposed to the Calder bill, as it now stands, though admitting the desirability of some form of uniformity in labeling and laws.

The Calder bill, it is generally understood, was framed by Thomas J. Lannen, deceased, who was counsel for the Flavoring Extract Manufacturers' Association of the United States. While the object of the bill wins a good deal of sympathy, a criticism of it frequently heard is that it was written solely from the manufacturers' viewpoint.

An opinion expressed at the food control officials' convention at Miami by one of the state commissioners was to the effect that the Calder bill has as much chance of passage as a repeal of the prohibition amendment.

Regardless of the merits or demerits of the bill it would appear to have very little chance at this session of Congress, which is apt to be engrossed up to the day of adjournment in discussing the tariff, railroad affairs, ship subsidy, the bonus bill and other similarly urgent matters. The Calder bill and other pending food legislation, such as the Haugen bill, cold storage bill, Voigt bill, etc., probably will not even come up for consideration before the next session.

Meanwhile, it is to be hoped that the food control officials will take the initiative in bringing together various factors of the food industry so that differences of opinions as to uniformity of laws may be threshed out and an agreement reached, if possible, upon a common aim.

The Making of Roquefort Cheese in America

THIS is a story of American conquest. Not military or commercial, but conquest in science. It is but a single chapter in the greater story of the appropriation of all good things of the Old World by the New. We tell the story here not because American-made Roquefort cheese is going to turn anything upside-down in this country, for it isn't; but because this achievement of food chemists is illustrative of other conquests that can be expected in the future.

Here is the story. Roquefort, or green mold cheese, has been manufactured in Europe for at least since 500 A. D. In recent times its manufacture has been limited almost exclusively to a little region around Aveyron, in southern France. It is made from sheep's milk, and a special dairy strain of sheep has been developed for this purpose. In 1908, 450,000 of these sheep produced 19,845,000 pounds of cheese. Now the reason that all our Roquefort cheese comes from Aveyron is not because these sheep cannot be raised elsewhere, but because the peculiar quality of flavor and texture of the cheese are due to its being cured under certain peculiar conditions, and because these conditions are furnished by certain caves in this region.

"The caves in Roquefort are of a peculiar rock formation in which there are caves and grottoes connected with one another and with the outside by numerous channels. Through these moist channels there is a vigorous circulation of air, causing a low temperature as a result of rapid evaporation. The temperature and humidity remain quite constant the year around, and these natural conditions, together with the ventilation, are favorable to mold growth and to the ripening of Roquefort cheese." The milk is curdled in the usual way, the curd placed in forms, and then sprinkled with bread crumbs that have been thoroughly molded by a pure culture of the Roquefort mold. The curd is mixed and then left in the forms several days to drain. The cheese then receives a rather heavy salting, and is again allowed to drain. A scum soon forms over the surface and this is removed after a time. Then the cheeses are punched full of holes to admit air and aid the development of the mold. Now they are ready for the curing caves. In these caves the temperature is always 39 and 46 degrees Fahr., and the relative humidity is between 90 and 100 degrees; and a stiff breeze through the grottoes provides good ventilation. After some five or six months the cheese is ready for the market.

Such in brief is the method of manufacture of this strange but delightful food product. Many thousands of pounds of it are imported into this country yearly, and of course are sold for very high prices. Several years ago the Dairy Division of the U. S. Department of Agriculture set itself the problem of learning how to manufacture this French delicacy in America. "What the French can do, we can do," and so on. But we don't have milk sheep in this country, and it is doubtful whether Yankee farmers would have the patience to milk them if we had them. Therefore it was decided to use cows' milk. And we don't have caves like the ones described above. Therefore it was decided to build curing rooms and imitate mechanically the conditions of temperature and humidity in the caves. After several years of experimenting, the problems have been solved, and the results published in Bulletin 970, under the authorship of K. J. Matheson. Not all the commercial problems have been solved, to be sure, but enough has been done to show that a high quality Roquefort cheese, very characteristic and readily marketable, can be made in this country from cows' milk; and we take off our hats to the men of the Dairy Division for this signal achievement.

And now for the moral of the story, if it is not already obvious. It vindicates what we have said before in these columns, that the technical man, especially the chemist, is to be looked to for most of the progress that will be made and has been made in the food industry. Other examples illustrating this contention could be cited, but they will be reserved for other occasions.

Bills Introduced to Regulate Sale and Labeling of Self-Rising Flour

Within the past month or so bills have been introduced in the law-making bodies of two southern states providing for regulation of manufacture and sale of self-rising flour. The first bill was introduced in Mississippi late in January and early in February a Kentucky bill was introduced containing similar provisions.

Up to date self rising flour has met with no federal or state laws not applying generally to all food products. However, of late an agitation has sprung up in the South, where self-rising flour is used very extensively, in favor of more definite labeling of its ingredients.



Defines Scope of Association Activities

Correspondence Between Attorney General and Secretary of Commerce Indicates That Activities Will Not be Materially Affected

Washington Bureau, American Food Journal,
622 Albee Building, Washington, D. C.

It is not believed that the activities of trade associations will be materially affected by the restrictions placed upon such organizations by the informal opinion recently furnished the Secretary of Commerce by Attorney General Daugherty. The activities of trade associations has been the subject of a number of conferences between the two officials, in an effort to determine upon the attitude to be adopted by the Government.

A list of activities covering the major part of the work of such organizations was submitted to the Attorney General by Secretary Hoover. In returning the list the Attorney General declared that such activities would not be considered as violating any law "provided always that whatever is done is not used as a scheme or device to curtail production or enhance prices, and does not have the effect of suppressing competition. It is impossible to determine in advance just what the effect of a plan when put into actual operation may be. This is especially true with reference to trade associations whose members are vitally interested in advancing or, as they term it, stabilizing prices, and who through the medium of the associations are brought into personal contact with each other. Therefore, the expression of the view that the things may be done lawfully is only tentative; and if in the actual practice of any of them, it shall develop that competition is suppressed or prices are materially enhanced, this department must treat such a practice as it treats any other one which is violative of the anti-trust act."

Scope of Trade Association Activity

The legal activities of a trade association as defined by Mr. Daugherty are as follows:

1. Provide for its members a standard or uniform system of cost accounting and recommend its use, provided that the costs so arrived at by the uniform method are not furnished by the members to each other or by the members to the association and by the latter to the individual members, and provided that no cost is adopted uniformly as to any item of expense.

2. May advocate and provide for uniformity in the use of trade phrases and trade names by its respective members for the purpose of ending confusion in trade expressions and

for harmony of construction as to the meaning of trade phrases, names and terms.

3. May, in co-operation with its members, advocate and provide for the standardization of quality and grades of product of such members, to the end that the buying public may know what it is to receive when a particular grade or quality is specified; and may, after standardizing quality and grade, provide standard forms of contract for the purpose of correctly designating the standards of quality and grades of product; and may standardize technical and scientific terms, its processes in production, and its machinery; and may co-operate with its members in determining means for the elimination of wasteful processes in production and distribution and for the raising of ethical standards in trade for the prevention of dishonest practices.

4. May collect credit information as to the financial responsibility, business reputation and standing of those using the products of the industry; and may furnish such information to individual members upon request therefor, provided such information is not used by the association or the members for the purpose of unlawfully establishing so-called "blacklists."

5. May arrange for the handling of the insurance of its members, including fire, industrial, indemnity or group insurance. (In other words, the members of an industry, through the agency of a trade association, can arrange for or place all of the insurance of the members.)

6. May, in co-operation with its members, engage in co-operative advertising for the promotion of trade of the members of that association engaged in the particular industry.

7. May, for and in behalf of its members, engage in the promotion of welfare work in the plants or organizations of its members, which welfare work includes sick benefits and unemployment insurance for employees, uniform arrangements for apprenticeship in trade education, the prevention of accidents and the establishment of an employment department or bureau for co-operation with employees.

Collective Consideration of Legislative Matters

8. May, in co-operation with and acting for and in behalf of its members, handle all legislative questions that may affect the particular industry, regarding factories, trades, tariff, taxes, transportation, employers' liability and work-

men's compensation, as well as the handling of rate litigation and railroad transportation questions.

9. May, in co-operation with and acting for and in behalf of its members, undertake the promotion of closer relations between the particular industry and the Federal and the state departments of government which may have administration of laws affecting the particular industry in any form.

10. (a) May collect statistics from each member showing his volume of production, his capacity to produce, the wages paid, the consumption of his product in domestic or foreign trade, and his distribution thereof, specifying the volume of distribution by districts, together with his stock, wholesale or retail.

(b) May, on receipt of the individual reports of each member, compile the information in each report into a consolidated statement which shows the total volume of production of the membership, its capacity to produce by districts of production, which, in some instances, includes a state or less area; the wages by districts of production, the consumption in foreign or domestic trade by districts, the volume of distribution by districts and the stocks on hand, wholesale and retail, by districts.

(c) And if, after compiling the information as aforesaid, the information received from the members as well as the combined information is not given by the association to any other person, may then file the combined statement with the Secretary of Commerce for distribution by him to the members of the association through the public press or otherwise and to the public generally and to all persons who may be in any way interested in the product of the industry, it being

understood that the individual reports for the members should cover either weekly, monthly, quarterly or longer periods as may be deemed desirable by the members, and, when a period is adopted, the reports shall cover such period.

Publication of Prices

11. (a) May, at the time it collects the production and distribution statistics above outlined, at the same time have members report the prices they have received for the products they have sold during the period taken, specifying the volume of each grade, brand, size, style or quality, as the case may be, and the price received for the volume so sold in each of the respective districts where the product is sold.

(b) May, without making known to any person the individual price reports of any member, consolidate all of the reports into one, and show the average price received for the total volume of each grade, brand, size, style, or quality, as the case may be, distribute in each district covered by the distribution statistics for the period covered by each individual report.

(c) And may, after making such compilation, send the compiled report as to average price, as aforesaid, to the Secretary of Commerce, to be by him distributed to the public and to any or all persons who may be interested in the particular industry making the report.

It should be noted, in connection with 10 and 11, that the Attorney General, while sanctioning the gathering of statistics for report to the Secretary of Commerce, does not state that such statistics may be disseminated by an organization among its members, who have furnished the figures and borne the cost necessary for their compilation.

U. S. Foodstuffs Division Begins New Work

THE foodstuffs division of the Department of Commerce has completed plans for a new service of interest and value to the food-products trade. Statements showing the trade movement of various commodities will be compiled by the division and sent out monthly to concerns desirous of securing such information.

The statements which the foodstuffs division will send out will show the imports, by quantity and, in some instances, by value, of the various foreign commodities used in this country; the exports of our principal domestic products, and re-exports of such foreign products as we re-ship, such as tea, coffee and cocoa.

The tentative list of commodities to be covered by this statement includes: Imports of copra and coconut oil, peanuts and peanut oil, and olives and olive oil, by countries; linseed oil, by countries; rice and rice flour, by districts; tea, by countries and customs districts; molasses, by customs districts. Exports of lard compound, oleomargarin, vegetable-oil margarin and vegetable-oil compounds, by countries; coconut, cottonseed, peanut, soya-bean, linseed and corn oils, by countries; linseed oil, by countries; oil cake and meal, by countries; eggs (in shell), butter, cheese and margarin, by

countries; canned meats, by countries; canned milk, by countries; canned fish (salmon, sardine, flaked fish and other), by countries; canned asparagus, corn, soups and tomatoes, by countries; canned peas, beans and vegetables not elsewhere specified, by countries; canned pears, cherries, peaches and pineapple, by countries; canned plums and fruits not elsewhere specified, preserved fruits, jellies and jams, by countries; dried and evaporated fruits, by countries; corn, oats, barley, wheat, wheat flour, rye and rye flour, by countries; corn meal, flour, hominy and grits, and other corn products for table use, by countries; rice and rice flour, by countries; bread, biscuit and crackers, by countries; coarse grain feeds, by countries; glucose, hops and malt, by countries; meats and meat products, by countries; confectionery, honey and maple sugar and sirup, by countries; pickles and sauces by countries. Re-exports of rice and rice flour, by countries; tea, by countries and customs districts; cocoa (powdered) and chocolate (except confectionery) by countries; breadstuffs, in transit—Canadian shipments outward, from the specified customs districts.

Business concerns wishing to have their names put on the mailing list for receipt of these reports should write to the division, stating which reports they are interested in.

Steps Taken to Carry out Packers' Consent Decree

THE Attorney General of the United States on March 3 submitted to the Senate his report outlining the steps that have been taken to enforce and carry out the terms of the so-called packers' consent decree. This decree, among other things, prohibits the packers from owning capital stock or other interest in public stockyard market companies, stockyard terminal railroads, or stockyard market newspapers, and provides that within 90 days from the entry of the decree the defendants as have such interests shall file in court a plan for divestment of their interests.

None of the plans approved by the court have as yet been consummated, and extensions of time for their carrying out were allowed by the court upon a showing by the defendants that they have been unable to sell their interests at any reasonable price, principally because of the difficulty, if not impossibility, of disposing of such large holdings during the unsettled business conditions which have existed practically

continuously since the entry of this decree, the Attorney General stated.

The report also pointed out that the packers are enjoined from dealing in "unrelated" lines, adding that the time for the complete divestment of the defendants of the prohibitive holdings with reference to unrelated lines has not yet expired. "However," it was stated, "some holdings of defendants in some corporations dealing, etc., in such unrelated lines have been disposed of by defendants and such dispositions have been reported to and approved by the court." The defendants, upon the entry of the decree, began a process of elimination of the stocks of merchandise of the prohibited unrelated lines and the Department of Justice is now informally informed that some of such interests have been completely eliminated and others about so, and that when the time for complete divestment of these interests expires the Department of Justice believes it will then be its duty to require a formal showing in court as to such matters.

QUESTIONS AND ANSWERS

On Problems of Nutrition and Diet for Dietitians and Domestic Science Teachers

Conducted by Bertha N. Baldwin

Editor's Note.—Readers are invited to send in questions to be answered in this department, which is prepared to act as a clearing house for current information—answering specific questions and problems suggested by our readers.

Nutritive Value of Various Salad Oils

AN interesting question has come in that brings up the whole subject of the value of the various oils used for salad oils, and the effect of the manner of preparation on their nutritive content.

Olive oil stands, by general consent, at the head of the list of oils for salads. The olives are cold pressed—that is they are not heated before pressing. The first oil to be extracted is the finest quality and is known as virgin oil. Inferior grades are obtained by re-pressing after the addition of water. Because the olives are cold pressed the oil does not require subsequent treatment to make it edible—the virgin oil being delicate in flavor and a clear light greenish yellow in color. The flavor varies with the variety, ripeness, manner of handling, length of time the fruit is stored before pressing, and the temperature and pressure at which it is drawn.

Cottonseed Oil Holds Important Place

Cottonseed oil now holds an important place after olive oil. To obtain the oil, more manipulation is necessary than in the case of olive oil, and more refining of the extract. The cottonseeds are cleaned, the hull or hard outside coat is broken, liberating the oil-containing part which is ground, then heated or cooked and finally pressed. The resulting oil is crude—of a nutty, not unpleasant flavor and dark red color and contains materials that develop disagreeable flavors and pronounced rancidity. All hot pressed and extracted oils have this coloring and flavoring which has to be removed if it is to be used for food purposes.

To refine such oils different agents have been used—various acids and alkalies, salts like borax, water-glass, and at one time potassium bichromate and potassium permanganate. Sometimes a strong salt brine is added to produce a cleaner separation of soap. The present commercial method consists simply of treating the warm oil with a solution of caustic soda and heating to about 120 degrees F. The alkali combines with the fatty acids forming a soap which settles. Much of the coloring matter is at the same time destroyed or precipitated, leaving a “summer yellow” oil which is used for margarin or cooking oil. For a salad oil, the next process is bleaching, which is done by mixing the hot refined oil with a small quantity of Fuller’s earth which takes up a large part of the remaining color that was not removed by the alkali. As a final process the oil is deodorized by washing with steam or heated air.

The final product is nearly free from the characteristic flavor and makes a good oil for salad. Its great advantage is the lower price compared with olive oil, as the highest quality of cottonseed oil costs about one-half the medium grade of olive oil. It “has essentially the same food value since both are practically pure fats.”

The Process of Refining Corn Oil

Corn oil is another salad oil. This is made as a by-product when the germ which contains the oil is removed from the corn in the manufacture of starch and other corn products. The older process—the wet process—is to soak the corn in dilute acid (sulphurous) for some time and separate the germ from the grain. The oil obtained by this

method will be already rancid when it is extracted and will have to be refined. The germs are cured until tough and leathery, then are flattened so that the oil cells are broken. The material is pressed similar to the way cottonseed is. The newer process—the dry process—is to remove the germ mechanically. It consists of heating the grains with live steam, then putting them through a machine that removes the bran, breaks the kernel and partially separates the germs. By the dry process if the corn is sound, the oil can be used for food purposes with little or no refining.

Peanut oil is used more in Europe than in this country. It bears the closest resemblance to olive in chemical and physical properties, and stands between the olive and cottonseed in grade and price. It is cold pressed like the olive, yielding an extract that is nearly colorless and has a pleasant nutty taste and needs no refining to make it suitable for salad purposes. To remove the characteristic flavor, however, elaborate refining is necessary.

Nutritive Value of Salad Oils

These oils are all generally wholesome and all are digested to practically the same degree. From the calorie standpoint they are of nearly the same food value—being practically 100 per cent fat, thus yielding about 4000 calories per pound. (Butter, containing water and salt, yields 3500 calories per pound). On the protein and mineral side there is no serious question “since commercially isolated fats as butter, lard and edible oils are practically devoid of protein and mineral ash constituents.”

Any comparison of their value must be, then, around the ever elusive vitamine, and in particular fat-soluble A. General tables show that these oils are entirely lacking in vitamins. The question is—are they fundamentally lacking in this factor, or have the vitamins been destroyed in the extraction of the oil? Such processes as heating in the presence of oxygen may be suspected of destroying all or part of some original vitamine. But olive oil fares no better in spite of the simplicity of the cold press process.

Eddy summarizes the situation about fat-soluble A as follows: “This process (removing the vitamine with the fat by ether extraction) fails when it is applied to vegetable sources such as cottonseed, corn germ, spinach, lettuce, etc. Neither does the cold or hot press method of oil extraction liberate the vitamine with the oil.”

To further confuse any attempt to settle the question we find that all experimenters do not agree as to the vitamine content for these oils. In one experiment in which cottonseed oil formed 28 per cent of the diet (which was planned to be free from fat-soluble A) the rats made normal growth and reproduced young. This result was so unexpected that the workers cut the fat to 21 per cent. The rats did not do so well. The authors concluded that both these fats (cottonseed oil and lard) seemingly contain appreciable amounts of fat-soluble growth stimulant, which shows when large amounts are fed.

Other authorities would explain this by assuming that animals can store a reserve of this vitamine, ready to be

drawn on in emergencies; or possibly, that the basal diet was contaminated.

One interesting point comes up. According to the researches of Steenbock and Boutwell and of Drummond, anything which bleaches, which destroys the yellow pigment does injure the fat-soluble vitamine. The refining of the salad oils would destroy part of the nutritive value if it existed in the crude oil.

Table of Butter and Oils

	Protein	Fat	Carbo- hydrate	Calories per lb.	Vitamines ¹		
	1%	85%	..		A	B	C
Butter	1	85%	..	3,191	+	+	+
Olive Oil .....	..	100%	..	4,082	(+)	+	+
Cotton Seed Oil.....					(	0	0)
Corn Oil .....					(	0	0)

¹ Upper rows of figures are taken from a report of British Medical Research Committee. Lower rows of figures in parentheses are taken from Eddy—The Vitamine Manual, 1921.

The Effect on the Nutritive Value of Rectifying Rancid Oils and Fats

Edible fats and oils as butter, olive oil and cottonseed oil may become rancid before they are used. Formerly these were waste products from the food standpoint and were used for the manufacture of soap and the like. Through the process of rectifying or renovating they can be made again edible.

To appreciate the pros and cons of these made-over food materials, it is necessary to understand what is meant by rancidity. "Many fats gradually become rancid, and develop a disagreeable smell and taste. This is due to atmospheric oxidation, which is facilitated by the influence of light." Chemically, fats are a combination of fatty acids and glycerol. The first step toward rancidity is the breaking down of fats, "liberating free fatty acids which are partly responsible for the characteristic burning taste of rancid oils. Aldehydes and other compounds (oxidation products) occur in rancid oils and to these more than to the fatty acids are due their disagreeable odor and flavor." Rancidity is not primarily due to bacteria or other micro-organisms, though they may take advantage of the oxidation and cause an actual spoiling.

Apart from the rancidity, there may be, as in the case of butter, a decomposition of other factors besides the fat—the protein of the milk which remains in the butter. This is an entirely different affair and may result in a kind of spoilage known as putrefaction.

Conversion cost as used above is defined in the bill to mean the cost of manufacturing or producing the article to which it may be applied, including labor, overhead, interest, insurance and transportation.

The process of renovating rancid oils (is briefly (butter for example) melt it, remove the froth or scum by straining, separate the curd or brine, which carries with it the bad flavors, wash to remove rancidity, aerate to expel faulty odors and finally re-churn the clean fat with fresh milk or cream. Some rancidity may be left if the process is insufficient since prolonged washing would remove the butter fats so essential to the flavor. The claim is that no chemicals are used but that the washing and aerating are relied on to rectify the fat. Some writers suggest that in cottonseed oil an alkali is added to neutralize the acid, and the mixture thoroughly washed.

In an accurate comparison of fresh and renovated butter the chief defect was found to be a loss of "grain" through melting although this is partially restored by subsequent granulation in ice water. The caloric value has suffered but little—82.5 per cent milk fat as against 85 per cent in fresh butter. "Apparently the differences in composition of butter fat brought about by renovation, if any, are minute and a long series of comparative analyses would be necessary to develop them."

Again comes up the question of vitamine content—fat-soluble A. No experiments are at hand dealing with the vitamine content of renovated butter. Fat-soluble A is considered to be little affected by acids or alkalis, and to be comparatively stable to heat, although heat plus oxygen results in vitamine destruction. There seems to be a chance that the vitamine may live safely through the process of renovating, but no premature judgments can be made because slight variations in conditions will give entirely different results.

Ward Puts 100 Per Cent Whole Wheat Bread on Market

The Ward Baking Company, which operates large bread and cake bakeries in New York, Brooklyn, Newark, Boston, Providence, Pittsburgh, Cleveland, Columbus and Chicago, recently placed on the market a new loaf of 100 per cent whole wheat bread.

The new loaf, which has been christened "Homespun," is sold in a brown and green wrapper, old-fashioned in appearance and bearing, most appropriately, the picture of an old grist mill. The loaf has caused quite a sensation in baking and grocery circles in New York and other cities, and is already on sale in 17,000 grocery and delicatessen stores in the metropolitan area alone.

One New York newspaper, the New York Globe, considered the introduction in New York City of genuine whole wheat bread of such importance to public health that it ran a two-column story about "Homespun" on the first page the day the loaf first appeared.

Most 100 per cent whole wheat breads heretofore have been rather heavy and dry and not sufficiently palatable ever to become popular except with a few zealots who were more concerned with food-value than with taste. For four years the technical department of the Ward Baking Company has been trying to produce a loaf of genuine 100 per cent whole wheat bread which, at the same time would have such a delicious flavor that people would continue to buy it day after day and thus establish the bread on a permanent commercial basis.

Ward's "Homespun" bread is made from the whole of the wheat. Many so-called whole wheat breads on the market are of course, not really whole wheat breads at all, being made from white flour with a certain percentage of either whole wheat flour or bran added to it. The whole wheat flour from which the new Ward loaf is made is especially milled

from the finest quality No. 1 Northern hard spring wheat, and no white flour whatever is used in making it. Additional food-value is imparted to the loaf through the use of large quantities of milk in the dough.

The Ward Baking Company reports that it has received letters from scores of physicians commending the company for putting out a loaf so rich in food-value and therefore of such importance to the health of the public.

The fame of the bread has already spread far and wide and inquiries and orders have been received for it from Texas to Maine and as far west as Pueblo, Colorado.

"Homespun" bread is now available to the public in all the cities and surrounding territories served by the Ward Baking Company.

The following laboratory analysis of the bread clearly shows its nutritive qualities:

Moisture	38.00	per cent
Starches (cooked)	42.50	" "
Sugars	3.01	" "
Protein	9.85	" "
Fats	2.89	" "
Fiber	1.70	" "
Mineral Salts	2.36	" "

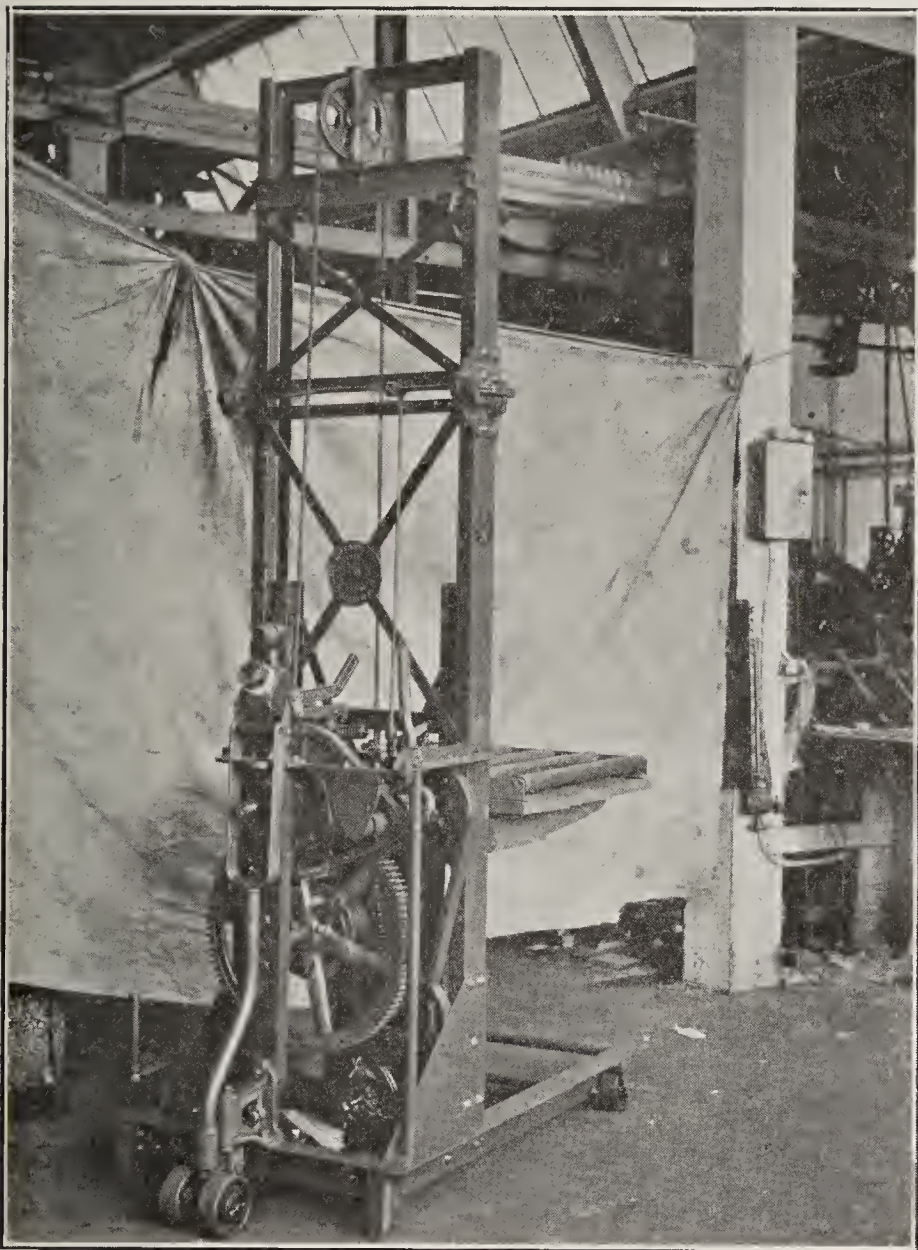
Analysis of Mineral Salts in Ward's Homespun Bread

Phosphates	28.00	per cent
Chlorides	25.12	" "
Sodium	16.28	" "
Potash	15.50	" "
Magnesium	9.20	" "
Calcium	4.05	" "
Sulphates	1.65	" "
Iron	0.36	" "
Silica	0.31	" "
Bromide, fluorides		
Alumina, manganese—	Traces	

MACHINERY AND EQUIPMENT

"Little Lifter" Portable Elevator

The Economy Engineering Company, 2635 West Van Buren Street, Chicago, is featuring for food warehouses and manufacturing plants a portable elevator called the "Little Lifter," especially adapted for handling sugar barrels and flour sacks. Aside from being portable, this machine is easily operated as the power can be obtained from an ordinary electric lamp socket. It is capable of lifting as much as 1000 pounds at a time.



New Portable Elevator Can Be Easily Operated

The "Little Lifter" is equipped with a fractional horsepower motor, and while all the requirements of fire underwriters are met, it is claimed that the electric circuit is never overloaded. The cord can be attached wherever there is an electric light.

Without making any change in the mechanism, the platform can be raised by hand in the same way as are the standard hand-operated machines. The platform speeds are 10 feet per minute for the 500 pound, 10 feet per minute for the 750 pound and 7 feet per minute for the 1000 pound capacity machines.

An adjustable stop device automatically limits the platform travel to any height desired. The platform, it is stated, cannot overtravel the top. A gravity hand brake allows the platform to be lowered as fast or slow as desired. The load is held securely at any point of ascent or descent. It is further claimed that the platform cannot fall or get out of control of the operator.

New Automatic Unit Helps Solve Problem of Hygienic Bottling

The carbonated beverage industry ranks among the big industries of the country. In 1920 over \$50,000,000 was paid in taxes by the manufacturers of soft drinks, indicating that over one-half a billion dollars is spent annually by the American public on these wholesome beverages.

In the old days carbonated beverages were usually made in dark cellars and basements and with insanitary hand or foot power filling and capping machinery. Only the brewers and the very large manufacturers could afford the installation of the expensive low pressure units which insured sanitary bottling conditions.

The invention of a high pressure unit by the Adriance Machine Works of Brooklyn, N. Y., has gone a long way to help solve the problem for the smaller bottler, who is now able to bottle under conditions as safe and sanitary as the brewer or larger beverage manufacturer. This complete bottling unit costs but a fraction of the price of the low pressure units, and performs all the operations of siruping, filling, carbonating and capping, automatically, bottling over a case a minute. By this method, absolute uniformity of product is maintained and safety and sanitation, it is claimed, are assured.

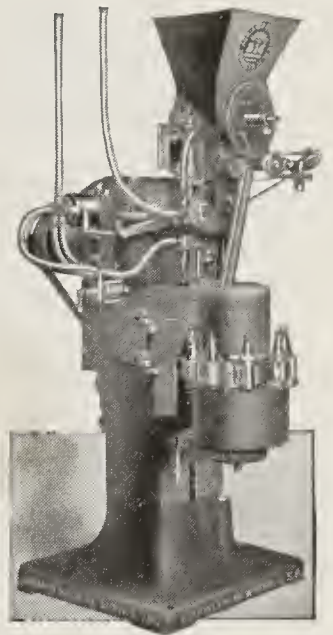
The food and dietetic value of the soft drink has been fully analyzed by the U. S. Bureau of Chemistry, and a report by Dr. Alsberg, late chief of the department, highly recommends the bottled carbonated beverage, as "an article of food worthy of regular consumption in the home."

New Organism Akin to Botulinus

The existence, says the Public Health Service, in a recent report by Ida A. Bengtson has been demonstrated of an anaerobic organism producing a soluble toxin which affects animals in a manner similar to that of the botulism organism but which fails to be neutralized by polyvalent botulinus antitoxin. Study of the organism, as found in the larvae of the green fly *Lucilia caesar* sent to the Service, indicate that it differs markedly from the botulinus isolated in the United States, and possibly is more nearly related to the European type described by von Ermengem in 1912, though it differs from this in important respects. Tests on laboratory animals by inoculation and by feeding caused death in from 5 to 71 hours. The most striking pathological result was, as in botulism, the congestion of the blood vessels of the brain and meninges. Efforts are being made to produce an antitoxin. The suggestion that the organism of the disease causes limberneck in chickens has not yet been demonstrated.

How Foods Meet Body Needs Shown by Graphic Method

A new and graphic method of showing the composition of 50 common foods has been followed in Department Bulletin No. 975, "Food Values: How Foods Meet Body Needs," by Emma A. Winslow, which has just been issued by the United States Department of Agriculture. The bulletin is of interest both to dietitians and to housekeepers. A chart for each food shows, by lines of different lengths, what percentage of the total necessary fuel and protein and also of three of the important minerals—lime, iron and phosphorus—is contained in a pound of that food, thus making it possible to compare foods with respect to any of their nutrients.



"Adriance" Siruping Filling and Capping Machine

NEWS OF THE FOOD TRADES

Pleads for Lowered Freight Rates

Canners' Association President Declares Industry Cannot Recover without Readjustment of Charges

Declaring that the canned goods industry is in a desperate condition and needs any reduction in freight rates that can fairly be given it, President James Moore of the National Canners' Association pleaded for lower traffic charges before the Interstate Commerce Commission at the rate hearings held by that body February 15.

Abnormal freight charges, stated Mr. Moore, have seriously limited distribution, and this limitation is becoming increasingly a grave matter to all canners of the country.

He called attention to the fact that distant shipments have been cut off drastically, established markets have been disrupted, the value of labels depreciated, the volume of business curtailed. Thus, Mr. Moore maintained, unavoidable overhead in the canning industry has been entailed.

Importance of Canning Industry

President Moore indicated briefly the size and importance of the canned goods industry and showed by statistics that it supplies the food of the great mass of the American public. Referring to the close relationship existing between the canned foods industry and the agricultural life of the country, he stressed the fact that some reductions have already been made on the rates of agricultural products and stated that these reductions should be extended to rates on canned foods.

"The National Canners' Association has made great efforts to get figures on the exact increases in cost owing to advances in freight rates," said Mr. Moore in the course of his address, "but no statistics could be obtained which had sufficient accuracy for the association to feel justified in presenting them to the commission. This is due largely to the different length of the shipment required by canneries and condenseries in different parts of the country. The figures varied so widely that no accurate tabulation could be made. It is, however, obvious that the canned foods industry bears this double burden upon incoming supplies and outgoing canned foods.

Freight Rates Remain at Peak

"The elements which enter into the cost of canned foods include raw produce, cans, cases and labels and labor. In addition to these are freight rates. It is desired to introduce at this point, marked National Canners' Association Exhibit 'H', a table showing the range of costs, freight rates and selling prices for 1914 to 1921. It will be noted that costs, freight rates and selling prices all rose together from 1915 to 1920, but thereafter while costs and market prices turned the corner and dropped sharply, freight rates are left at the 1920 peak, fixed by the commission.

"These figures do not purport to be nation-wide, but they are accurate for the localities reported, and it is believed that they are reasonably representative. At

any rate it is perfectly clear that the canned foods industry has done everything possible to cut the cost of canned foods to allow the decline in selling price made necessary by the reduced pocketbook of the consumer. The cost of raw produce, cans, cases and labels, and the cost of labor have all been cut as far as possible. The freight rates alone remain at the high level.

"In the industry the abnormal freight rates have seriously limited distribution and the limitation becomes a grave matter to the canner. He usually sells under special labels and makes great effort and heavy expenditures, not only to establish a trade under such labels, but also to maintain the quality and character of the goods sent out, with the result that his special labels become a substantial asset in maintaining his market.

High Rates Cut Off Distant Shipments

"The high freight rates have cut off his more distant shipment and limited his distribution to a smaller circle. His established market has been disrupted, the value of his labels depreciated, the volume of his business curtailed and his unavoidable overhead has been seriously thrown out of proportion.

"On the other hand, it does not appear that the business thus lost on long shipments has, to any considerable extent, inured to the benefit of any other packer. Indeed, we are satisfied that the effect has been to reduce the consumption of canned foods in certain fields reached by the longer hauls to the detriment, not only of the farmer and the canner, but the carrier as well.

"Canneries are located in farming communities especially adapted to the production of perishable products, canned out of necessity. Any interruption or curtailment of the business immediately and directly affects agricultural interests and when the volume of the canning business, fully one-third of the wheat crop value, is considered, the seriousness of the interruption can be reasonably measured.

"The local communities are given over to the production of these special crops and the depression, indeed distress, incident to the curtailment of the canning business, becomes a vital matter to the growers in those communities."

Others in addition to President Moore, appearing before the Interstate Commerce Commission on behalf of the National Canners' Association were Judge J. Hari, Covington, counsel, of the association, and E. S. DePass, traffic manager of the Carnation Milk Products Company and member of the traffic committee of the National Canners' Association. All the data that had been secured for use in presenting the case of the National Canners' Association and its request for lower freight rates to the Interstate Commerce Commission was reviewed previously to the hearings at a special executive meeting.

A statement furnished by the Canners' League of California was read by Judge Covington in order to put in the record the complaint of the California Canners. As a matter of information, after the National Canners' Association had completed presentation of their case, H. J. Herrington of Ogden, Utah, a director of the national association, and H. W. Prickett presented the case of the Utah canners.

Coffee Importations Still Increasing

1921 Quantities "Biggest Ever" Totalling 1,341,000,000 Pounds —Tea and Cocoa Show Decreases

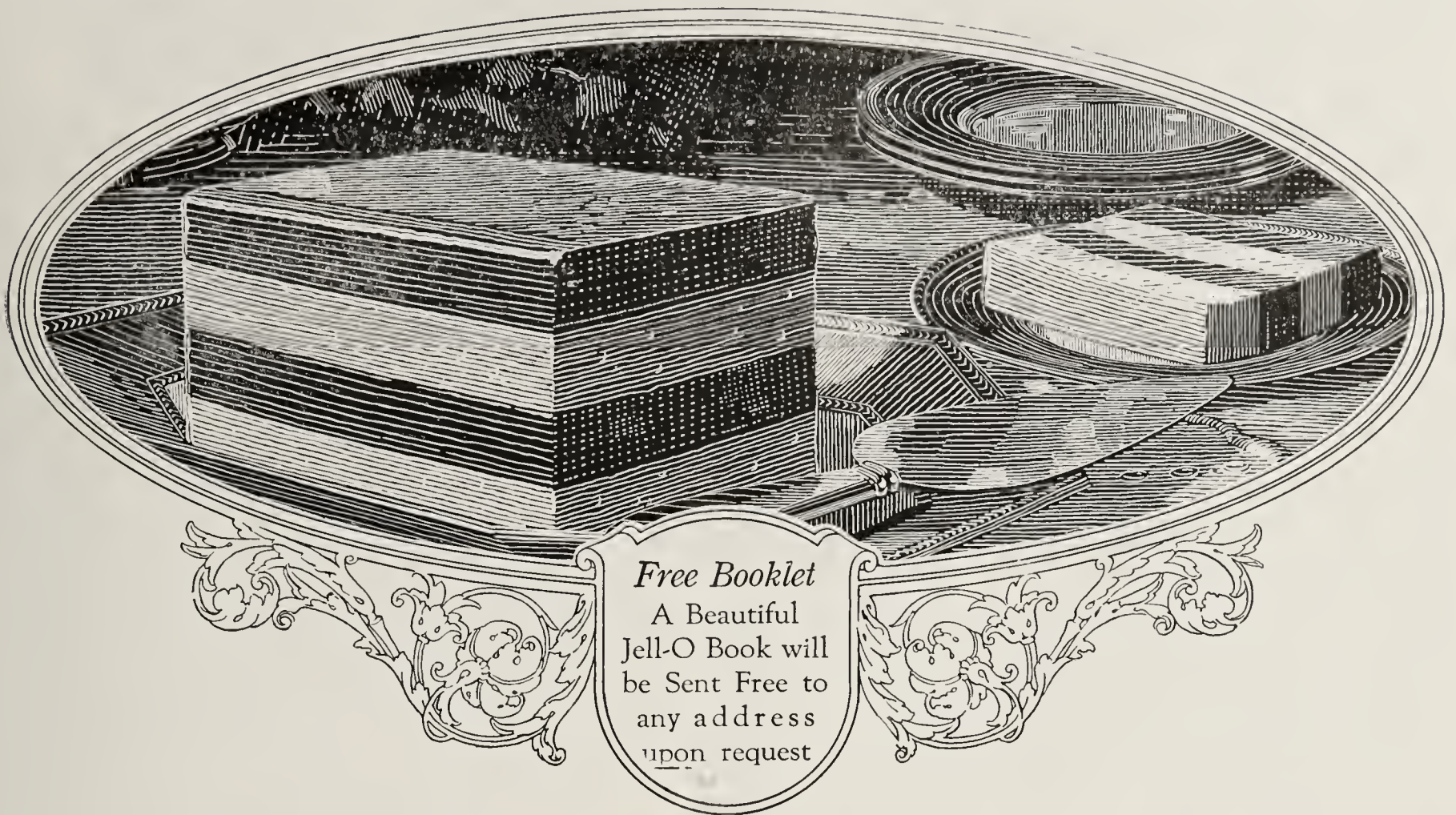
Whether prohibition has anything to do with it or not, it is at least a fact that the quantity of coffee imported into the United States goes on increasing year by year irrespective of the fall off in nearly everything else. The quantity of coffee imported in 1921, says the "Trade Record" of The National City Bank of New York, is the "biggest ever," totaling 1,341,000,000 pounds, aside from that brought from our own islands, while tea and cacao show big decreases. The tea imports of 1921 show a fall of 14,000,000 pounds as compared with 1920, and cacao a fall of 40,000,000 pounds. The tea imports are the smallest in quantity in 20 years, and the cacao imports the smallest since 1917, while coffee not only shows an increase of 44,000,000 pounds, but is, in fact, greater than in any earlier year. Whether or not the public agitation and increased purchasing power of the war period had anything to do with the consumption of coffee, it is at least a fact that the importation of coffee began to increase immediately following the opening of the war, jumping from an average of about 875,000,000 pounds a year in the pre-war period to 1,000,000,000 in the first war year and steadily increasing until the total imports now average fully 50 per cent greater than the average of the four years preceding the war. In fact, the United States has sent out of the country more than \$1,000,000,000 for coffee in the last 7 years, while the average prior to the war was but about \$75,000,000 a year.

Latin American Imports

Nearly all of the more than a billion dollars sent out of the country for coffee in the past 7 years has gone to our Latin American neighbors; of the \$143,000,000 worth of coffee imported in 1921, \$77,000,000 worth was from Brazil, \$37,000,000 from Colombia, \$12,000,000 from Central America; nearly \$7,000,000 from Venezuela; \$3,500,000 from Mexico, \$1,500,000 from the West Indies and a little less than \$2,000,000 from the Dutch East Indies.

Possibly some part of the increase in the imports of 1921 may have been due to the fall in prices, for the average price of the coffee imports of 1921 was less than 11 cents per pound against 19½ cents in the calendar years 1920 and 1919.

The per capita consumption of coffee in the United States has steadily increased for many years. The average consumption in the year just ended was about 12½ pounds per capita against an average of slightly less than 5 pounds per capita in the decade ending with 1870; 8½ pounds per capita in the period 1891-5; 9½ pounds per capita in the period 1906-12; and has averaged since the beginning of the war over 10 pounds per capita, advancing to 12½ pounds in 1921. Approximately one-half of the coffee produced in the world is consumed in the United States.



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Coffee Roasters Urge Cutting Costs

National Association Announces Economies Effected by Traffic Department

The National Coffee Roasters' Association has urged its members to support strongly a measure recently introduced in the Senate by Chairman Cummings of the Interstate Commerce Commission authorizing the railroads to issue interchangeable mileage tickets.

The association also announces that it is prepared to aid in the adjustment of the most difficult claims. One adjustment, effected last month, resulted in the collection of \$187.

Other activities of the association, during the past month, included a recapitulation of the work of the traffic department, wherein it was shown that nearly half a million bags of coffee were handled in 1921, or 80,000 bags more than in 1920. Without increasing the expense, the association claims that several hundred thousand more can be handled during the current year.

One bulletin issued by the association, last month, dealt with the interesting subject of the chain grocery store. It pointed out that if the independent retailer is to survive this keenly growing competition the wholesale roaster must come to his aid by providing him with coffee at a figure that will enable him to sell at prices quoted by the chain store. This seems one way, to the association, in which something practical might be accomplished in checking the probability of a shrinking volume of business. In this competition encroaching upon the coffee business, the roaster is warned to consider every item of expense, no matter how small or trivial, and to see if it cannot be reduced so that the aggregate will mean a real saving that can be passed on to the independent retail grocer.

List of Trade Directories

To assist jobbers, manufacturers and a variety of other interests who find the trade directories a very necessary tool, the Special Libraries Association is publishing a list of 500 or more trade directories in its journal, "Special Libraries." This is the first time, it is announced, that such a list has been prepared.

The Glendora Products Company, Warren, Pa., coffee roaster, has started an advertising campaign in daily newspapers published in Ohio, Pennsylvania, New York and adjoining states to advertise "Glendora" coffee.

FINEST EVER

"The American Food Journal is the finest journal of its kind that I have ever read."—E. M. Johnson, vice-president, Mead Johnson & Company, Evansville, Ind.

Recent Patents

The following patents of interest to readers of THE AMERICAN FOOD JOURNAL recently were issued from the United States Patent Office. Copies thereof may be obtained from R. E. Burnham, patent and trade-mark attorney, Continental Trust Building, Washington, D. C., at the rate of 20 cents each. State number of patent and name of inventor when ordering.

1,400,992. Process of treating coffee-beans and other substances and product resulting therefrom. Nathan Rosewater, Cleveland, Ohio.

1,401,278. Process for producing lactic ferment culture for milk. Peter Petersen, Indianapolis, Ind.

1,401,351. Process for the manufacture of grape extract. Eudo Monti, Turin, Italy.

1,401,433. Process for recovering materials from molasses. Holger de F. Olivarius, San Francisco, Cal.

1,401,452. Chewing-gum and process of making same. Harry M. Weber, Bloomfield, N. J., assignor to Ellis-Foster Company.

1,401,498. Food compound and process of making the same. John H. Sasseen, Houston, Tex., assignor to United States Food Products Company, same place.

1,401,853. Process of separating butter-oil from milk, skim-milk, buttermilk, butter, etc. Wallace Alexander, Jersey City, N. J., assignor to The De Laval Separator Company, New York.

1,402,004. Confectionery. Hugo Mock, New York.

1,402,108. Precooked food. Edgar S. Stoddard, Chicago, and Carl S. Miner, Glen-coe, Ill., assignors to Armour Grain Co., Chicago.

1,402,136. Process for the manufacture of catsup. Wallace A. Beatty, New York.

1,402,193. Cooker, cooler, and the like (for treating canned goods). Albert R. Thompson, San Jose, Cal., assignor to Anderson-Barngrover Mfg. Co., same place.

1,402,234. Coconut-shell-cracking machine. Herbert C. Jones, Tottenville, N. Y., assignor to Franklin Baker Company, Philadelphia, Pa.

Last Year's Tea Standards Retained

U. S. Board of Tea Experts Recommend to Department of Agriculture Eight Standards

Last year's standards for tea entering the United States were declared of sufficient merit to warrant retention during the year beginning May, 1922, at a recent meeting of the United States Board of Tea Experts at New York. It was decided that the eight present standards be recommended again to the Secretary of Agriculture for approval. It is believed that George F. Mitchell, supervising tea examiner will approve the recommendations as submitted.

The following tea men, appointed as members of the United States Board of Tea Experts, were in attendance at the gathering to select the tea standards, which was held at the U. S. Appraiser's Stores, 641 Washington St.: J. J. McNamara (Jones Bros. Tea Company, Inc.), New York, N. Y.; H. G. Woodworth (Robinson & Woodworth), Boston, Mass.; Arthur T. Hellyer (Hellyer & Company), Chicago, Ill.; W. W. Krag (Phelps, Krag & Company), Detroit, Mich.; E. R. Rogers (The Rogers Company), Tacoma, Wash.; George W. Caswell (Geo. W. Caswell Company), San Francisco, Cal.; and Geo. F. Mitchell, Supervising Tea Examiner, Bureau of Chemistry, Charleston, S. C.

Selections were made from teas submitted by members of the tea trade who had been requested to send available samples that, in their judgment, were best suited for Government standards. When passed upon by the Secretary of Agriculture, formal publication of the standards will be made and sent in bulletin form to officers of the Tea Inspection Service and others concerned. The eight standards chosen, the same as those for last year, are reproduced herewith:

1. Formosa Oolong (used for Foochow and Canton Oolong).
2. Congou.
3. Ceylon (used for India, Java and Sumatra).
4. Gunpowder, green.
5. Young Hyson, green.
6. Japan.
7. Scented Orange Pekoe (used for capers).
8. Scented Canton.

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Europe's Need for Food Large

Survey by U. S. Department of Agriculture Shows Many Countries Plan to Import American Foodstuffs

Need for our foodstuffs in European countries reaches many millions of tons, report G. F. Warren and W. F. Callander of the United States Department of Agriculture, recently returned from the study of agricultural and market conditions in Europe. Germany alone will require 2,000,000 tons of imported foods before the next harvest. Czechoslovakia, Austria, Italy and France are also looking to America for huge quantities to supplement their own supplies.

Drought in Europe

The severe drought that occurred in Europe last spring came after the rye and wheat crops were out of danger. In fact, the abundant sunshine, coupled with sufficient moisture in the soil to ripen these crops resulted in excellent yields, declares Dr. Warren, but barley and oats were generally damaged and corn, potatoes, sugar beets and fodder crops suffered most of all. For example, in Germany the wheat yields per acre were 20 per cent above last year, while potato yields per acre were 13 per cent less than last year. In Hungary the wheat yield per acre was 14.4 bushels last year and 17.5 bushels this year. But the yield of potatoes per acre was 121.2 bushels last year and 66.7 bushels this year. Corn yielded 24.9 bushels per acre last year and 13.6 bushels this year.

The drought damaged pastures and fodder crops to such an extent that in some countries live stock was sold off as a result. Such sales tended further to depress the meat markets. The drought also delayed the planting of winter wheat until the late rains came. The area seeded was reduced and in much of Europe the sowing was done after the best date for seeding, so that the crop next year will be injured unless the winter is very favorable.

Surplus-Producing Countries of Europe

Roumania's exportable surplus will probably be less than 300,000 tons, reports L. G. Michaels, who is making similar studies for the Department of Agriculture in that country. This would indicate that earlier suppositions that the Roumanian surplus would be an important source of supply for Europe are no longer tenable. Great difficulty is being experienced in Roumania, writes Mr. Michaels, in concentrating this small surplus because of shortage of cars, price fixing, and governmental conditions. The corn crop is much below last year's and is barely sufficient to supply local needs.

All of these countries combined will play a very small part in the export situation this year.

Although the production of wheat and rye in Europe in 1921 was much above 1920, a large amount of grain must be imported before the next harvest. The consumption of the new crop began about a month earlier than usual; the fodder, root and potato crops are smaller than usual; the condition of the fall-sown crop of wheat and rye is not satisfactory so that the farmers are inclined to hold over some of this year's crop.

European Crops

The total production for 18 European countries for 1920 and 1921 was as follows:

	1920	1921
	Bushels	Bushels
Wheat	846,691,000	1,050,640,000
Rye	493,887,000	688,644,000
Barley	430,456,000	462,543,000
Oats	1,157,753,000	1,168,325,000
Potatoes	2,690,435,000	2,399,517,000
Corn	321,843,000	283,214,000

Countries with a Deficit

The countries in Europe that are importing and must continue to import grain are: The United Kingdom, the Scandinavian countries, Czechoslovakia, Germany, Austria, Italy, Switzerland and France.

The wheat crop in the British Isles this year was large but reports state that most of it has been consumed. Probably imports will continue at nearly the usual rate. The German needs for the remainder of the year were given on November 1 as approximately 2,000,000 tons. Very little has since been imported. When the mark dropped so low in value the German Government delayed its purchases of grain waiting for a hoped-for improvement in the exchange rate. One of the primary factors in the wheat situation is the ability of Germany and Austria to buy. On December 1 the needs of Czechoslovakia were stated by officials to be 250,000 tons. Austria is importing and will need to import 50,000 tons of grain a month for the balance of the year. The needs of France will be dependent on the amount held by farmers but probably an importation of half a million tons will be required. It is stated that Italy will need about 1,000,000 tons in addition to her own crop in order to furnish a normal supply to her people. The United Kingdom and Holland have been heavy importers of corn during the year and will probably continue to import.

Consumer's Meat Dollar Grows Bigger

The president of the Chicago Meat Council, and one of the best-posted meat retailers in the country, declares that a dollar will buy 74 cents' worth 18 months ago, and against 67 cents worth of other food right now. In his statement John T. Russell of Chicago says:

"The housewife seeking good value for her money will find that meat is a good 'buy' as compared with other food. A dollar spent at retail, which eighteen months ago was worth only 52 cents on a pre-war purchasing basis, is today worth 74 cents when spent for meats, but only 67 cents when spent for other food, according to an analysis made by the meat council of figures just published by the Bureau of Labor Statistics of the United States Department of Labor covering nine meat products, including lard, and 13 other articles of food.

"Meats show sharp declines from the prices prevailing one year ago. The Government figures for the period ending November 15 indicate retail price declines on meat products ranging from 17 per cent to nearly 43 per cent, the average being about 25 per cent and in excess of the average decline on other foods. Pork chops dropped 11 per cent during the month and more than 27 per cent during the year ending November 15."

Move to Permit Cereal Beverages in Alabama

At the recent extra session of the Alabama legislature, a movement was started to secure the enactment of a new cereal beverage law to permit the sale and manufacture of near beer. Opposition to the proposed bill was registered with Governor Kilby, and the strongest protests were made by the preachers of Birmingham, and other cities.

Before prohibition became nation-wide, through the enactment of the Eighteenth Amendment, Alabama was among the numerous States which had adopted its own laws prohibiting the manufacture and sale of alcoholic beverages.

A new process has been installed in the J. T. Castle's Ice Cream Company's plants at Irvington, N. J., and Perth Amboy, N. J., whereby air is removed from ice cream in the process of manufacture by substituting an atmosphere, it is claimed, of absolute sterility, germ-free and clean. The process was invented by W. P. Heath.

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APR 17 1922

The American Food Journal

The National Magazine of the Food Trades



JAMES L. FORD, Jr., of St Louis, President National Food Brokers' Association.

Articles in This Issue: Dehydration of Sweet Corn Successful, Dried Milk Commended by Food Experts, "Filled Milk" Bills Passed.

Why the Big Canneries Use H&D Corrugated Fibre Boxes

PACKING canned goods properly for shipment is a big problem in the large canneries that ship thousands of cases every day. They must get their goods to destination unbroken and unscratched—clean, bright and ready for the retailer's shelves. Mutilated labels, damaged cans and concealed thefts cause annoyance, loss and delay to both the manufacturer and his distributors.

That is why many of the big canneries and food factories have adopted and are using the specially built **H & D Standard Canned Goods Shipping Boxes** in filling orders. These boxes safeguard the shipments and bring them to the retailer clean, bright and undamaged.

H & D Canned Goods Box specifications were selected by the U.S. Food Administration as the standard for corrugated fibre shipping boxes to carry canned goods to army camps and cantonments. Millions of cans were packed in them **without a single complaint.**



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Volume XVII

The American Food Journal

Number 4

The National Magazine of the Food Trades

Established 1906

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The American Food Journal

The National Magazine of the Food Trades

Established 1906

Vol. XVII

APRIL, 1922

No. 4

Dehydration of Sweet Corn Successful

Drying of This Product Has Been Proved Commercially Profitable—
Details of Manufacturing Technique

By W. A. NOEL

Engineer, Commercial Dehydration, United States Bureau of Chemistry

THERE are three methods of food preservation: sterilization, refrigeration, and dehydration.

The Civil War was responsible for the rapid development of the sterilization method commonly known as canning. This industry has developed to tremendous proportions. In 1920 there were packed in this country 12,317,000 cases of peas, 11,368,000 cases of tomatoes, and 15,040,000 cases of corn, each case containing 24 No. 2 cans. Minnesota, with factories valued at \$1,000,000, canned approximately \$3,000,000 worth of corn alone.

By refrigeration huge quantities of fresh foods are kept in good condition while being transported to points of consumption. The heavy duty placed on the consumer by this method precludes the use of fresh fruits and vegetables in the diet of many.

Dehydration was developed to a great extent during the late war when fairly good dehydrated products were produced by some American manufacturers for the Army. Since the war the U. S. Department of Agriculture has been investigating dehydration as practiced commercially, and through co-operation with the manufacturers, has been able to assist in improving the products and the factory methods of production. At the present time a number of dehydrated fruits and vegetables of very good quality are on the market. Granting that the drying of fruits and vegetables is an old art now clothed with a new name, a vast difference exists between the ordinary dried products and the products prepared in our best dehydration plants. Dehydration means just what it seems to mean—a scientific method of controlling the drying conditions.

The secretary of one of the State departments of agriculture expresses the belief that "we are entering upon a period of drying of both fruits and vegetables so that we will live out of cartons instead of out of tin cans."

During the season of 1920 twelve plants dehydrated more than a million pounds of choice sweet corn. Quantities of this corn were retailed over the counter from bulk goods, in

the markets of Washington, D. C., at 25 cents a pound, while small cartons were retailed at the rate of 40 cents a pound. In Pennsylvania, where dehydrated sweet corn is produced and a fairly good market for it has been developed, one concern retails its entire output directly to the consumers at 40

cents a quart. One quart contains about one pound. The conversion ratio of this product is five bushels green to one bushel dry; one pound of dehydrated sweet corn is equivalent to three cans of fancy canned corn. The reabsorption ratio of one sample tested showed one to 2.84, that is, one pound of dried corn refreshed in water weighed 2.84 pounds.

Sweet Corn Dehydration Plants

Of the commercial sweet corn dehydration plants investigated by the Bureau of Chemistry, eight are in the tobacco-growing section of Lancaster County, Pa., two are just outside of Harrisburg, Pa., and two are in Ohio. The equipment necessary for the dehydration of sweet corn should include husking machines, steam blancher, cutting machines, drying unit, locomotive type boiler, steam coils, fans, disintegrator, cleaner, packer and scales.

All the plants follow much the same method in preparing the corn for dehydration. Motor-driven corn-husking machines and corn-cutting machines are used to remove the husk and silk and cut the corn from the cob. Just after husking and before the cutting operation, the corn is blanched sufficiently to

set the milk and preserve the color. This blanching is accomplished by placing the ears of corn in a large steel tank and blowing into it live steam under 5 to 10 pounds pressure for about 20 minutes, depending on the maturity of the corn.

Four types of driers are used, but the final products are much the same. Usually a hot air duct built of lumber and tin conducts the heated air underneath a drying compartment on which the corn is supported either by a moving galvanized iron wire belt or by stationary galvanized iron wire trays. In a few instances the heat radiating units are placed in the air compartment directly beneath the corn, thus ef-



W. A. Noel



Fig. 1—This plant dehydrated 60,000 pounds of corn in 1920. The farm averaged 25 bushels (1,000 pounds) to the acre.

fecting the drying by radiant heat. Figure 1 shows an individual farm plant. Figure 2 shows the plant of a commercial or stock company.

Wire Belt Type Drier

The wire belt type of drier has been used by one manufacturer for two seasons with fairly satisfactory results. This drier is similar to the Draper system employed by the California Raisin Growers' Association plant at Fresno, Cal., with the exception that the belts are not tiered one above the other nor are they enclosed. Four belts are used here to form two separate drying units. One belt is placed at the end of the other, overlapping just enough to drop the corn from the first onto the second. Each belt which is 4 feet wide and 25 feet long from center to center of the revolving drums, provides about 88 square feet of drying surface. The corn is spread from two to six inches deep.

Automatic elevating and conveying machinery is used so that the corn need be touched by hand only when it is fed into the cutter, from the time it is unloaded from the farmer's wagon until it is spouted into the finished package or container. In this plant less hand labor is necessary, although the operations are the same as those used in connection with other types of driers. From the cutter the corn drops through a spout onto an endless belt. The corn is spread on the belt in a layer $5\frac{1}{2}$ inches thick, and the drying is started by blowing air at 180 to 200 deg. Fahr. up through it for 45 to 50 minutes. This layer of corn is thereby reduced to a thickness of about two inches. The first belt travels at the rate of six inches per minute; the second belt travels at the rate of one foot in 7.5 minutes. The corn spread thereon varies in depth up to six inches. The temperature of the drying air is 140 deg. Fahr.

By the time the corn has traveled over the length of the first drying belt's effective drying area, it is fairly dry. It is then scraped from the end of the first draper, dropping onto the head end of the second draper which carries it along the effective drying area for a distance of seven feet. Here it is automatically picked up by the revolving paddles of an agitator and worked through the one-half-inch meshes of a concave wire screen. Next it drops to the same endless belt and continues over the remaining 15 feet of drying distance. It then tails off the end of the second belt and is picked up by a vertical elevator which carries it to the milling separator where it is cleaned and spouted into a bin from which it is packed. This plant employs eight women and four men.

Compartment Type Drier

The compartment type drier used by one producer is new in the commercial field devoted exclusively to sweet corn drying. The results obtained in a financial way and



Fig. 3—The beautiful surroundings of this dehydration plant indicate prosperity

in quality of finished product have been successful. Intelligent management has followed a wisely selected combination of activities to be specialized. The farm on which this compartment drier, shown in Figure 3, is erected consists of 20 acres planted year after year in Stowell's evergreen sweet corn. Approximately 600 bushels of dehydrated sweet corn were prepared this year for the retail trade at 40 cents a quart. The conversion ratio of this drier is 4.8 to 1, and a bushel of dried corn weighs 33 pounds.

The drier consists of six individual compartments, as shown in Figure 4, designed to accommodate 36 trays, each providing a total spreading surface of 786 square feet for each compartment. The trays, which are 21 x 25 inches, are made of galvanized iron wire screen, 18 meshes to the inch, with wooden frame. Each tray is loaded with 6.12 pounds of corn just cut from the cob and introduced into the compartment. The drying time is four hours. In a day of 12 hours, 24 bushels of corn are dehydrated.

Ordinary ventilating fans are used to exhaust the air from the compartments to which it is led by ducts from three hot-air furnaces in the basement. The temperature of the air varies throughout the drier more than it should. A variation also occurs in the velocity of the air, as shown by the anemometer readings which were 135 feet per minute on the bottom tray, 100 feet per minute on the middle tray, and 143 feet per minute on the top tray. This requires constant supervision and necessitates transferring the corn and trays from one position to another. The drying is started and finished in the same compartment.

A Less Definite Type of Drier

Another plant using trays does not confine the air to any outlet duct after it has left the plenum chamber and passed up through the trays. The air is allowed to rise to the top of the building where racks suspended from the rafters hold trays loaded with corn which is reduced to a still lower moisture content by the hot air as it passes through it and out the ventilators in the roof.

Table Type Drier

Most generally used of all systems is the wire screen covered table or plenum chamber, shown in Figure 5. These tables range in size from 4 x 6 feet to 6 x 24 feet. After being cut from the cob, the corn is either elevated and conveyed or spouted to the table

where it is spread evenly over the surface by workmen, using wooden hoes. Blower fans force the heated air into the chamber and up through the corn. The air in this chamber is under a pressure greater than atmospheric pressure and has a temperature of 170 to 200 deg. Fahr. In passing up through the corn the temperature of the air is reduced as much as 50 degrees, and the relative



Fig. 2—This factory is devoted exclusively to the dehydration of sweet corn

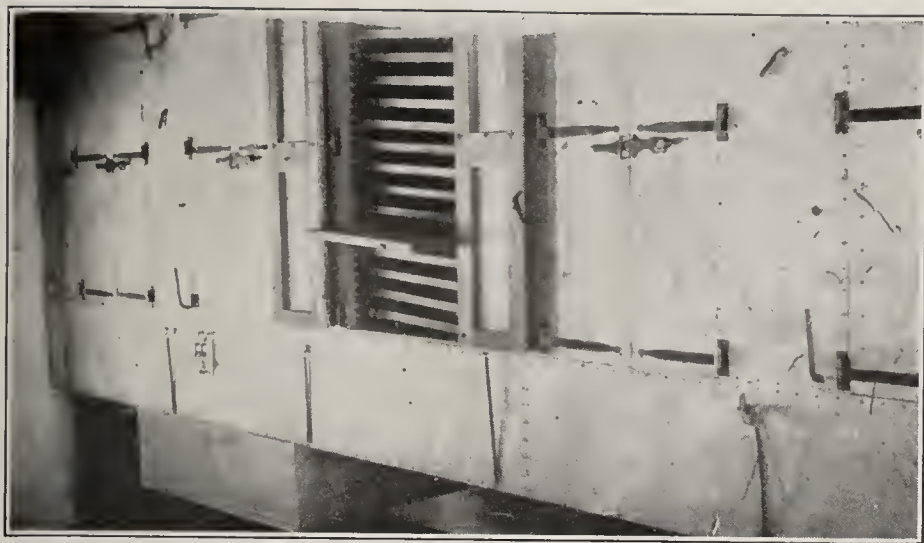


Fig. 4—A compartment dehydrator

humidity of the air is increased about 40 per cent. The corn is left on this drier for about two hours, depending upon the degree of maturity of the corn. It is then run through a one-half-inch wire mesh disintegrator which breaks up the lumps formed in drying. It is then spread on the finisher where air of 140 deg. Fahr. is blown through it for about two hours, completing the drying.

In some installations the steam coils are placed longitudinally in the plenum chamber, while in other installations the coils are arranged in a compact encased battery and the air is heated in passing through this unit before it is blown into the compartment over which the corn is spread.

One plant using this type of drier had two tables 6 x 16 feet, one table 4 x 18 feet, and a finisher 5 x 24 feet. Another plant had two tables, 4 x 16 feet, and a finisher 4 x 18 feet. The capacity of this type of drier is 0.94 bushel per square foot of drying or spreading surface per day of 12 hours. The corn dried in this manner, after being cleaned and crated, weighs about 40 pounds to a bushel. The weight per bushel of dehydrated corn, of course, depends upon the stage of maturity of the corn dried.

After the corn has been dried it should be run through a fanning mill of some suitable type wherein aspiration is effective in removing the small pieces of husk, cob, silk, etc., before the corn is packed for marketing. It has been customary for manufacturers to pack the corn in six-ounce car-

tons and in one-pound cartons, in paper lined barrels and in flour sacks.

Now a Successful Industry

In conclusion, it can safely be said that sweet corn dehydration is a successful industry, in spite of the fact that some other vegetables when dehydrated have not proved profitable. The technique of dehydrating such vegetables as stringless beans, spinach, pumpkin, horseradish, and other root crops used in a vegetable soup mixture, has been successfully developed also. Most fruits, grapes, and berries are now dehydrated just as well as these vegetables. Dehydrated sweet corn is twice as profitable to the manufacturer as canned corn and costs the housewife only one-half as much. Of course, dehydrated corn is not to be compared with canned corn, the two being entirely different products. The flavor of dehydrated corn differs from that of canned corn, resembling more nearly that of corn roasted on the cob. It is much desired by people who have lived in the country or trucking sections where strictly fresh corn might be easily obtained for drying. As soon as the American public realizes the economic advantages resulting from the use of dehydrated fruits and vegetables, they will be as much in demand during the winter months as the fresh products are during the summer months.



Fig. 5—In 1920 400,000 pounds of dehydrated corn were taken from these tables

Wheat Grown in Alaska Makes Good Pastry Flour

Flour of very good quality, especially for pastry and biscuits, has been produced in the Tanana Valley in Alaska, under the direction of the Fairbanks Experiment Station of the United States Department of Agriculture. It has been the aim of the Alaskan Experiment Stations to develop the production of homegrown foodstuffs in sufficient quantity to take care of the needs of homesteaders and settlers now in Alaska, and a great deal of attention has been given to the growing of a satisfactory wheat. A co-operative mill of 25-barrel capacity has been erected at Fairbanks, to grind the grain produced in the vicinity. It is the belief of the department that agricultural production can be extended in Alaska as rapidly as increasing population makes necessary, although it is not anticipated that there will be any considerable export of farm crops from Alaska for some time, owing to the cost of transportation.

Samples of Alaska flour were sent to the department recently, and were tested by baking experts in the experimental kitchen of the Office of Home Economics, States Relations Service, and by the Food Control Laboratory of the Bureau of Chemistry. These samples, while less satisfactory for yeast-risen breads than some of the flours produced in the United States, proved to be excellent for making baking-powder biscuits, cake, and pastry products, when judged according to volume, texture, flavor, and general appearance. The color of the crumb in these bakings was creamy yellow, but not unattractive.

World's Dairy Congress for 1923

Present plans of the World's Dairy Congress Association, formed by the dairy interests of the country at the suggestion of the Secretary of Agriculture, call for the holding of the World's Dairy Congress in October, 1923, probably either in Chicago, Indianapolis or Philadelphia.

The congress was originally planned for this year, but it was deemed desirable to postpone it a year in order that preliminary arrangements might be completed. By the passage of a resolution by Congress last month, official recognition is given the affair and foreign governments will be invited by President Harding to send delegates. The purpose of the congress is to provide up-to-the-minute scientific and industrial information for dairymen and cattlemen, as well as to fix the attention of parents and social workers upon the vital part played by milk products in the diet of the country.

Credit for suggesting the congress goes to Argentina, recommendation that a Pan-American dairy conference be held in 1919 being made to the Department of State and by it turned over to the Department of Agriculture. At that time, however, the American dairy and cattle interests felt that it was too soon after the war to hold such a meeting, but took to the idea and have been working on it ever since.

Owing to its wide appeal, business men of all lines in any way connected with the production or distribution of dairy products are coming forward in support of the congress, and it is constantly becoming more apparent that the meeting will be of great service to American interests.

The Nutritive Value of Meat and Its Place in the Diet

By E. B. FORBES

Specialist in Nutrition, Institute of American Meat-Packers

LIGHT is thrown upon the nutritive requirements of man in the history of his diet. From the early days in which he developed the pattern of his teeth, his digestive system, and his excretory organs, to the present, his prevailing diet has been one of mixed animal and vegetable food. Man is essentially an omnivorous feeder. His career as a farmer and later as a manufacturer of foods has been but a day in the evolution of the race. Man's present nutritive requirements are essentially those of his prehuman ancestors, and we are adding each year to our knowledge of the disturbing effects of departures from those ancient food habits to which we are by nature adapted.

The natural place of meat in the diet is as a protein food, though it also contributes largely of phosphorus, iron and palatability. In 1914-15 in New York City meat contributed to the prevailing diet about one-third of the protein, and iron, and one-fourth of the phosphorus, at one-third of the total cost.

The nutritive superiorities of meat depend on its protein, its iron, and its palatability. Phosphorus from other sources is as valuable as meat phosphorus. Meats make substantial contributions to the vitamins of the diet, but some other foods are richer in these components.

Meat proteins have a superior nutritive value because they more closely resemble the tissues which are to be nourished than do other proteins, and can be transformed with less loss. Probably on this account Funk, the physiologist, who named the vitamins, found that a diet containing meat requires less vitamins, for perfect nutrition, than any others. McCollum and associates have found that meat protein is superior even to milk protein for making good the deficiencies of the proteins of barley, peas, soy beans, rye, maize, navy beans, wheat, rolled oats and potatoes.

An especially marked superiority of meat as a food is in relation to the nourishment of the blood. Whipple and associates at the University of California Medical College found that beef muscle, heart and liver were much superior to bread and skim milk for restoring the blood to normal in simple anemia. They also found that Bland's pills and other iron-containing drugs were quite without value for purposes of

blood-regeneration. Their best results were obtained with heart and liver.

As a matter of practical dietetics, however, no nutritive consideration compares, as a motive for eating meat, with the fact that we like it. Meat contributes more to the palatability of the diet than does any other food, primarily because of its nitrogenous extractives; and this palatability incites the stomach to secrete a gastric juice of higher digestive power than that due to the eating of other foods, as shown by Pawlow, the Russian physiologist.

Meat also has a capacity, recognized by all physiologists, to stimulate the vital processes, which contributes a feeling of vigor and physical well-being that makes it virtually an essential in the diet of working men, athletes and soldiers.

Meat in the diet also has a value in connection with the development of the teeth. Children reared on soft foods which require little mastication often suffer from lack of development of the jaw bones and their alveolar processes, so that the teeth come through crowded, projecting, or crooked. Spare the meat grinder, and save the teeth by teaching the child to use them. The aboriginal baby cut his teeth on a bone, and ate meat as soon as he could chew it. The child of two years has two teeth all the way around, back of the front set of four, above and below; and the United States Public Health Service advises the feeding of some meat to a child beginning at two years of age.

In relation to disease, meat cures pellagra, and anemia, and, under appropriate dietary conditions, scurvy and beri beri as well. Phenomenal results were obtained in the Japanese navy in the cure of beri beri by substituting meat for white rice in the ration.

The leading pathologists of the United States agree that meat eaten in moderation, during health, is not known to cause any disease. Stefansson has shown that it is possible to live year in and year out on meat alone, provided it is not so thoroughly cooked as to injure the scurvy-preventing vitamin.

The gist of this whole matter is that we have new reasons for regarding meat highly, and we have no reason for departing from those habits as to meat eating which our own practical experience has led us to adopt.

Synopsis of an address before the Chicago Housewives' League, Fine Arts Building, March 13, 1922.

Smyrna Fig Production Becoming Major Industry

THE Smyrna fig industry has grown greatly in California, through the safe-guarding of the caprifig supply. Steps are now being taken to provide for the placing of caprifigs in other localities of the South where Smyrna figs are being grown. The crop of Smyrna figs is absolutely dependent on a ready supply of caprifigs, or male trees, carrying the fig insect, or *Blastophaga*, for fertilizing Smyrna figs. It is recognized that the time may come when it will be worth while to caprify all of the common figs, including those which otherwise reach an edible condition without pollination, because of the great improvement in flavor and size that results from the formation of viable seeds. The Smyrna fig, which is the variety dried commercially, will not mature at all without caprification.

The fig insect matures in the inedible caprifigs, which grow on a separate tree from the real figs; these caprifigs produce the pollen, which is carried on the legs of the fig insect when it emerges and flies to the pistillate tree and caprifies its fruits. It is customary to hang a number of the small caprifigs in the Smyrna fig trees at the time the insects begin to emerge. A caprifig orchard at Loomis, Calif., is under lease to the U. S. Department of Agriculture, and has been a prominent factor in producing the California fig crop. Arrangements are being made for a caprifig planting at some

location near San Francisco sufficiently protected against winter cold to insure a supply of winter caprifigs to use in re-establishing the fig insect when killed out in the less protected places. There is need for other similar plantings.

The Smyrna-fig investigations conducted by the Department of Agriculture in the Southeastern States are chiefly confined to bringing into fruit the numerous seedlings of the Smyrna variety occurring in widely scattered communities. A limited distribution of insect-bearing caprifigs from Brunswick, Ga., has brought gratifying results in producing good crops on otherwise barren trees. The fig insect has been established also at points in South Carolina, Florida, and Texas in addition to the first station at Brunswick.

England Has Beet Sugar Plant

A large beetsugar plant, covering more than 40 acres, and with a daily capacity of 600 tons of beets, recently started production at Kelham, Nottinghamshire, Consul Calvin M. Hitch, of Nottingham, reports. The British aim to establish a permanent beet-sugar industry, and this factory is classed as a commercial experiment. It would require some 200 plants of that size to meet the country's sugar needs.

Some Precautions in Canning Process—II

Research Laboratory of National Cannery Association Compiles New Data—Dangers to Be Avoided in Pea Canning

By W. D. BIGELOW*

Director Research Laboratory, National Cannery Association

SWELLS and flat sours in canned peas are both due to bacterial decomposition. They may be entirely prevented by sealing the can tight and giving a sufficient process.

Peas require a better seal than more foods, because they appear to contain no gluey material which might close small openings in the can. If peas are not well double-seamed, there is a great danger of spoilage. The paper gasket has relieved the canner of much of the difficulty of this kind. With this form of closure it is easy to make a seal that is tight to bacteria, and it is generally admitted that with peas the paper gasket is distinctly superior to rubber composition closure. Still, regardless of the form of closure, the double-seamer must be kept carefully adjusted and cans must be filed from time to time to make sure that the seam is tight. If this is not done, spoilage from imperfect double-seaming is likely to occur. In such cases the cans almost always swell, although the spoilage may take the form of flat sours.

When the seam is tight, it is obvious that sufficient processing is the only means of preventing spoilage. When the process is insufficient, surviving bacteria of course produce spoilage. If they are gas-forming bacteria, the spoilage takes the form of swells. If the bacteria, on the other hand, do not form gas but do form acid, the spoilage takes the form of flat sours. In either case, the remedy is an adequate process.

Higher Temperature Required to Destroy Thermophiles

The majority of bacteria grow at ordinary temperatures. There is a class of bacteria, however, known as thermophiles (heat-loving), which grow very slowly, if at all, below the temperature of 100 degrees F. These thermophiles require a higher temperature or a longer time of heating to destroy their spores than do the bacteria which grow at lower temperatures. When peas are very much underprocessed, spoilage occurs very quickly, often within a few hours after canning. If they are processed sufficiently, however, to kill the ordinary types of bacteria but insufficiently to kill thermophiles, they may remain sound for a year or more, and often after that time when placed in a warm location spoilage may occur. In such a case, the spores of thermophiles may remain without change until the following summer, and then germinate because of the warm weather to which they are exposed, and spoilage will result.

The series of processing studies that is being carried on by the research laboratory of the National Cannery Association has now reached such a stage that we can begin to apply the results obtained to process times and temperatures. Much yet remains to be done in securing fundamental data, and such fundamental data may cause us to modify slightly suggestions made at this time. Further work in the securing of fundamental data will make our present information more complete and more exact. It is believed, however, that the suggestions made tentatively at this time are sufficiently accurate to make them of value to the industry and that the relations shown between the process times required at various temperatures are accurate. From the results thus far obtained, it is the opinion of the laboratory that peas should be processed as follows:

No. 2 cans	40 minutes	at 240 degrees
No. 10 cans	50 minutes	at 240 degrees

This process is about ten minutes longer than was customary ten years ago. As a result of experience from underprocessing, however, canners have generally come to the conclusion that the process given above is better than shorter cooks. The work of the research laboratory in studying the bacteria causing spoilage also confirms this view. If it is desired to shorten the time, a higher temperature of process should be used. For instance, in processing at a temperature of 250 degrees, the following processes are approximately equivalent in sterilizing value to those given above:

No. 2 cans	15 minutes	at 250 degrees
No. 10 cans	20 minutes	at 250 degrees

Whatever the temperature of process, care should be taken that thermometers and pressure gauges are accurate and that the retort is held at least as high as the temperature at which processing is intended to be done. If there is an error of one degree in the thermometer, or if because of carelessness in setting the automatic temperature control, the cooking is done at 239 degrees instead of 240 degrees, an additional six minutes should be added to the time of processing. In other words, in processing peas in any size of can at the temperature of 240 degrees, an error of one degree in temperature makes a difference of six minutes in the time necessary to sterilize. In processing at 250 degrees, the variation of one degree in temperature has less influence than at 240 degrees. At 249 degrees about one and one-half minutes longer is required for the sterilization of No. 2 cans of peas than at 250 degrees, and for No. 10 cans the difference is about one and three-quarter minutes.

Sub-Standard Peas

Sub-standard peas include all peas whose appearance or flavor does not entitle them to the grade of standard. It is impossible, therefore, to give an adequate explanation of the causes of sub-standard peas without considering every influence that may have a bearing on the quality of peas.

It is a simple matter to pack fancy peas with the smaller sizes of peas when they reach the canning plant in their best condition. With a good grade of the raw product, standards are easily packed. Again, peas are sometimes delivered at canning plants in such condition that it is impossible to prepare anything better than sub-standards from them. There remains, however, a considerable proportion of the peas delivered to the average plant which may be turned into standards by the application of energy and skill, or which may result in sub-standards because of any one of many conditions which may be permitted to occur in the plant.

In suggesting the following list of frequent causes of low quality in peas, I wish to acknowledge the co-operation of Mr. B. R. Hart, with whom I have frequently discussed these matters:

1. The use of a variety of peas which do not ripen uniformly or which are not properly "rogued."
2. The lack of sufficient care in the time of harvesting the peas, thus allowing some of them to become too hard.
3. Allowing the peas to remain too long in the vines after being cut, thus permitting them to age and become harder.

*This is the concluding installment of a series of two articles by Dr. Bigelow on the results of his investigations.

4. Allowing peas to remain too long in boxes after being vined. This may occur in hauling the peas from the viner station to the canning plant, or holding the peas in the canning plant and running them through the machine one size at a time, thus attempting to make one line do the work of three.

5. The mixing of mature and immature peas in the same batches, thus grading them together. In such cases the more mature peas go through the sieve with the same size of immature peas, and in processing, the more mature peas are swollen and the can looks as if it had not been graded.

6. Unnecessary heating, either on the vine or in the box after being vined.

7. Too much handling in boxes in the canning plants, and especially the use of wooden packing boxes for this purpose. No. 2 packing boxes are not suitable for handling vined peas. Such handling as must be given them should be in perforated metal pails.

8. Poor judgment in the part of the filler operator in determining the amount of peas to be filled into the can. Of course, the amount to be placed in the can varies with the maturity and character of the peas. Careful attention is necessary to prevent underfilling or overfilling. Either causes a sub-standard pea; the former, because of an insufficient fill; the latter, because of mashing the peas and making the liquor cloudy.

9. Improper cooling after processing is likely to give a cloudy liquor, especially with the larger sizes of peas, and of course reduces the grade.

10. The use of improper water for blanching and for the preparation of brines. A more tender pea can be secured with a soft water than with a hard water. The toughness imparted to the pea by hard water can be corrected to a considerable extent by the process, but it is believed that the highest quality of peas can only be secured with water that is relatively soft.

11. The use of an unnecessarily large amount of salt increases the hardness of peas. Even the purest grades of salt contain about one per cent of calcium and magnesium compounds. These are the same substances that cause the hardness of water, and the addition to peas of an undue amount of salt has the same influence as heating them in water that is unnecessarily hard. Of course, peas require enough salt to give them the desired flavor, but care should be exercised not to add too much.

12. Peas should not be overblanched. The blanch is of no value in softening peas. Its purpose is to wash the peas. The proper regulation of the blanch also has an influence on the turbidity of the liquor of certain types of peas. The blanch, however, should be no longer than is necessary to wash the peas and insure a relatively clear liquor. A blanch of ten minutes is sufficient. A longer blanch than this has the effect of hardening the peas. This is particularly true in hard water; but all water is more or less hard. The practice of some canners of giving a short blanch to succulent peas and a longer one, sometimes as much as twenty-five to thirty minutes, to their hard peas, is a mistake. Canners who follow this practice rarely have a presentable article in their larger sizes of peas. Tenderness can only be imparted to peas by the process. It cannot be accomplished by the blanch. On the contrary, as stated above, a long blanch is especially inappropriate with hard peas.

13. Insufficient judgment and care in processing. Many canners adopt a certain time and temperature for processing and never vary this, no matter what the quality or appearance of their finished product. The processes suggested above are believed by the research laboratory to be the minimum processes that should be used for the purpose of securing a sterile product. If the peas are hard, a longer process should be used to secure a product of a desirable degree of succulence. In canning the larger sizes of peas, and especially hard peas, the pea canner is in the same position as the baked bean canner. A variation of the length of process is often advantageous.

New Government Bulletin Helps to Standardize Canning

TO throw further light upon the matter of initial temperatures and their bearing upon pressures, vacuums and temperature changes during and following the processing period, the United States Department of Agriculture has recently issued Bulletin No. 1022, by C. A. Magoon and C. W. Culpepper, "The Relation of Initial Temperature to Pressure, Vacuum and Temperature Changes in the Container During Canning Operations."

With water the rate of change of pressure and the rate of change of temperature at the center of the can agree closely and are very rapid where the external medium is water and very slow where the external medium is air.

With food materials in which a free liquid fills the interspaces the rate of change of pressure and of temperature is very rapid; but while the maximum temperature is reached promptly the maximum pressure, on the other hand, is never reached during the ordinary processing periods, the pressure continuing to rise slowly as long as the high retort temperatures are maintained.

In cans filled with material of heavy consistency, the rate of change of temperature at the center of the can is very slow. In contrast with this, the rate of change of pressure is very rapid at first and then becomes slower after the first few minutes. An equilibrium of pressure apparently is never reached, since in experiments where processing was continued for several hours the pressure continued to rise as long as the retort temperature was maintained.

The continued increase in pressure long after an equilibrium of temperature is reached has been explained as due to the decomposition of the food material with the consequent liberation of gases. The setting free of hydrogen as a result of the action of the acids of the material upon the metal of the can would give this result, and doubtless it does with some acid fruits, but experiments with vegetables

seem to indicate that this is not the sole cause of the increase in pressure.

In the heat exhausting of cans the vacuum may not be proportional to the average temperature of the material at the time of sealing, but is determined largely by the temperature of the head space. Thus a short exhaust results in a comparatively high vacuum if the sealing is done immediately. On the other hand, a long exhaust may be very ineffective if the sealing is delayed so that the head space cools.

The vacuum developed in tin cans is generally below the theoretical, the causes contributing to the variation from theoretical values being the distortion of the can, the swelling of colloidal substances, and the liberation of gases during processing. Lower vacuums are obtained where long processing periods are used and the higher retort temperatures are employed.

The resistance of the can to internal pressure is very much greater than its resistance to external pressure; hence, the vacuum and the pressure can not safely be made numerically equal when processing much above 100 deg. C. In order to reduce the strain due to internal pressure during processing, the sealing temperature is made as high as is possible without danger of collapse of the can in handling when subsequently cooled to normal temperature. The strain upon the can during processing is found by subtracting the pressure in the retort from that in the can. When the pressure in the retort is released the strain upon the can is increased by an amount somewhat less than the pressure in the retort, owing to the cooling which occurs during the release and to the further distortion of the can. The greatest strain upon the can occurs at the time the pressure in the retort reaches zero. The strain due to internal pressure is greater the lower the sealing temperature and the higher the processing temperature.

New York Adopts "Filled Milk" Bill

Ferris Measure Prohibiting Sale of Substances in "Semblance" of Milk Adopted—The American Food Journal Urged Governor Miller Not to Sign

SUPPORTED by a "farm bloc" which brooked no opposition concerning legislation which it favored, the New York Dairymen's League succeeded in obtaining adoption of the so-called Ferris skimmed milk bill at the session of the New York State Legislature which adjourned about the middle of March.

This bill was the subject of hearings at which proponents and opponents were given an opportunity to voice their approval or objections. The Committee on Agriculture, which conducted these hearings, reported the bill favorably.

The Bill as Finally Adopted

The bill as finally adopted and signed by Governor Miller on March 30, reads as follows:

An act to amend the farms and markets law in relation to adulterated milk, imitation milk, adulterated cream, imitation cream, milk and cream mixed and ice cream and to repeal section fifty-three of such chapter in relation to certified milk.

Section 1. Section fifty of chapter forty-eight of the laws of 1922 entitled "An act in relation to farms and markets, constituting chapter sixty-nine of the consolidated laws" is hereby amended to read as follows:

STATE OF NEW YORK

G. O. 459 Nos. 837, 1369 Int. 753

In Senate, Chapter 365, February 15, 1922

Introduced by Mr. Ferris—read twice and ordered printed, and when printed to be committed to the Committee on Agriculture—reported favorably from said committee with amendments, and ordered reprinted as amended, and committed to the Committee of the Whole.

AN ACT to amend the farms and markets law, in relation to skimmed milk and products manufactured therefrom.

§ 46. Definitions. The term "milk" when used in this article means the whole, fresh, clean, lacteal secretion obtained by the complete milking of one or more healthy cows, properly fed and kept, excluding that obtained within fifteen days before and five days after calving, or such longer period as may be necessary to render the milk practically colostrum free.

The term "pure cream" or "unadulterated cream," when used singly or together, means cream taken from pure unadulterated milk.

The term "milk and cream" when used means a mixture of milk and cream which contains at least ten per centum of milk fat.

The term "adulterated milk" when used means:

1. Milk containing more than eighty-eight and one-half per centum of water or fluids.

2. Milk containing less than eleven and one-half per centum of milk solids.

3. Milk containing less than three per centum of fats.

4. Milk drawn from cows within fifteen days before and five days after parturition.

5. Milk drawn from animals fed on distillery waste or any substance in a state of fermentation or putrefaction, except ensilage, or on any unhealthy food.

6. Milk drawn from cows kept in a crowded or unhealthy condition; or milk produced or kept in insanitary surroundings or in any environment or under any condition whatever that is inimical to its healthfulness or wholesomeness.

7. Milk from which any part of the cream has been removed.

8. Milk which has been diluted with water or any other fluid, or to which has been added or into which has been introduced any foreign substance whatever.

All adulterated milk shall be deemed unclean, unhealthful, impure or unwholesome.

The term "adulterated cream" when used means cream containing less than eighteen per centum of milk fat or cream to which any substance whatsoever has been added.

The term "skimmed milk" when used means milk, as hereinbefore defined, from which part or all of the cream has been removed, but which is otherwise unadulterated, except in respect to an excess in the per centum of water or fluids or a deficiency in the per centum of milk fat or milk solids contained therein, provided the same shall contain at least eight and one-half per centum of milk solids.

The term "butter" when used means the product of the dairy, usually known by that term, which is manufactured exclusively from pure, unadulterated milk or cream or both with or without salt or coloring matter.

The term "cheese" when used means the product of the dairy, usually known by that term, which is manufactured exclusively from pure unadulterated milk or cream or both with or without coloring matter, salt, rennet, sage, olives, pimentos, walnuts, peanuts, tomatoes, celery salt, or onions, added thereto as a flavor: provided that when manufactured by adding to the elemental product of the dairy usually known by the term "cheese," and manufactured exclusively from pure, unadulterated milk or cream or both, any pimentos, olives, walnuts, peanuts, celery salt, tomatoes or onions the percentage of all such substances so added shall not exceed twenty-five per centum in bulk of the manufactured product.

The terms "oleomargarine," "butterine," "imitation of butter," "imitation cheese" mean any article or substance in the semblance of butter or cheese not the usual product of the dairy and not made exclusively of pure or unadulterated

(Concluded on page 18)

The American Food Journal Protests to Governor Miller Against Signing of the Ferris Bill

BELIEVING that the adoption of the Ferris skimmed milk bill would be a serious mistake from every point of view, the Editor of The American Food Journal on March 18, telegraphed to Governor Miller of New York State, urging him not to sign the bill. This telegram was supplemented by a letter setting forth the reasons why The American Food Journal believed the measure should not become a law.

We reproduce our letter to Governor Miller as follows:

March 18, 1922.

The Hon. Nathan Miller,
Governor of State of New York,
Albany, N. Y.
Dear Sir:

We took the liberty today of telegraphing to you as follows:

"We believe that a very serious mistake will be made if the so-called Ferris skimmed milk bill becomes a law.

"A similar bill passed by Wisconsin has been attacked in the courts and the referee's report is unfavorable to it. Aside from the injustice of the measure, it has cost that state a great deal of money to defend it.

"Full information regarding this matter being forwarded to you by mail today.

Editor The American Food Journal,
25 East Twenty-Sixth Street,
New York City."

We are informed that the Wisconsin case (referred to in our telegram) will be argued about April 15, and a decision may be expected about May 1. It would seem to us that it would be folly for the State of New York to adopt a similar bill before a decision has been announced in Wisconsin as it might cost this State a great deal of money to defend the measure, as it has already cost the State of Wisconsin a considerable sum.

Although we, of course, are not permitted to comment on the report of the referee in the Wisconsin case in advance of the court's decision, we think that a reading of this report will convince you that the opponents of the Wisconsin bill have established in the referee's opinion certain strong points against the measure.

Before going further, we should like to impress upon you that we have no personal interest at stake in writing to you in opposition to the Ferris bill: we do not even carry any advertising of any of the companies which manufacture dried milk or skimmed milk preparations.

Our objection to the bill is based not only on the feeling that it would be wiser to await the decision of the Wisconsin Supreme Court as to the constitutionality of the measure adopted by that State, but upon the facts regarding the undesirability of such legislation which have been submitted by various food experts genuinely interested in the public health.

The Dairymen's League, which has been fostering such legislation as the Ferris bill, has brought forward no sound objection to such preparations except that they are deficient in vitamins. In this connection it may interest you to read an abstract from the report of the Committee on Preparation, Packing and Transportation of Foods of the American Public Health Association:

"A very interesting, instructive and important example of misapplication of the vitamin hypothesis was furnished recently by a bill introduced in Congress to prohibit the manufacture of a class of foods known as 'Filled Milk' and which are admittedly wholesome and nutritious. Those favoring the bill did so on the ground that these foods are composed of skimmed milk and vegetable fat, usually coconut oil, and are deficient in vitamins, and, therefore, might become injurious to health and might lead people to believe that they were buying milk even though the labels on the containers plainly stated what the ingredients were.

"A number of excellent authorities appeared before the committee and discussed the bill from all angles. Lafayette B. Mendel furnished the committee with a written opinion which we believe is very rational and we therefore quote from it in part:

"Preparations of so-called 'Filled Milk' are emulsions of vegetable fats in skimmed milk. Coconut oil is commonly used, I believe, in preparing them. These fats are admittedly digestible and nutritious; so is skimmed milk, which, owing to fostered prejudices, has been a greatly undervalued article of diet. The milk compounds should be properly labeled, as every package of food should be. They should not be recommended for use in infant feeding; on the other hand, no harm can come from the chance use of a quantity of skimmed milk even by infants. I mention this because the opponents have spread the impression among gullible persons that the use of a can of milk compound is a positive menace to the infant which consumes it. Skimmed milk is not a rank poison. It is merely not a complete food for an infant. Neither is barley water nor prepared foods.

"I am informed that some of the milk compound packages and advertisements not only give the composition of the contents, but specifically indicate in words that the product is not recommended for infant feeding. What, then, shall we say of the value of milk compounds, properly marketed in conformity to the pure food laws for adult nutrition? I do not see how they can be designated otherwise than as wholesome food. Indeed it would be a nutritional advantage if skimmed milk were used more widely in culinary practices. It greatly enhances the value of cereals, notably the 'staff of life,' bread. 'Filled milk' enriches them also, adding wholesome fats. No one knows at present to what extent 'vitamin' may be required by adults, but in any event the latter, using a mixed diet of adult life, are not dependent upon cream for this food factor. It is quite as reasonable to object to the sale of polished rice or patent flour; indeed, skimmed milk and its 'compounds' surpass either of these foods in nutritious properties. The opponents of 'filled' milks have tried to exclude them on the plea of 'menace to

public health.' No public health question is involved. The claim is a specious one. The House bill represents a fight between industrial interests and I am confident that the medical profession would not admit that any wholesome food is a menace. Life and health are not endangered."

Dr. Mendel is recognized as one of the leading authorities on nutrition and his comments are worthy of very careful consideration.

Another committee of the American Public Health Association, that devoting itself to Nutritional Problems, of which Prof. H. C. Sherman of Columbia University, is chairman, sees no menace in dried milk preparations and recommends a wider distribution of them both for reasons of health and economics.

Pointing out that the increasing of the milk supply of cities and towns by bringing fresh milk from greater distances must necessarily add to the cost, it is suggested that the seasonal surplus of milk produced in the market milk areas should be preserved by condensing, evaporating or drying to a larger extent than at present. Such preserved forms of milk (either as such or after being "remade" to the composition of fresh milk) "shall play an increasingly important role in the food supply of the future."

This committee reports that the United States Public Health Service has found highly favorable results from the use of dry milk products in infant feeding. The committee refers to the convention of the International Association of Dairy and Milk Inspectors in April, 1919, at which G. B. Taylor, market milk specialist of the Dairy Division, United States Department of Agriculture, discussed "The Effects of Remade Milk on the Dairy Industry," basing his report upon letters received from heads of dairy departments in the state agricultural colleges to whom he had written asking for an expression of opinion. The great majority of these heads of dairy departments reported their belief that the powdered milk industry will be a benefit to the dairy industry and to agriculture in general, as stated in the following reasons:

- a. It will help to stabilize the market for dairy products.
- b. It will help solve the problem of surplus milk.
- c. It will increase the use of milk generally, especially in countries where, on account of climatic conditions, the use of milk has been restricted.
- d. It will not compete directly with the market milk industry, but will be used principally for cooking, for bakeries and confectioneries.
- e. The manufacture of skim milk powder would be an advantage to dairymen since the prices realized by them in supplying milk for this product are very satisfactory.
- f. The more uses milk is put to, the better it is for the dairy farmers.

Concluding its arguments, which we have only given in part, the committee says:

"The opinion is widely held and in our judgment well founded, that the dry milk industry will not seriously compete with or in any way injure the fluid milk industry as it now exists, but, rather, will supplement it and make possible the good use of its seasonal surplus; that with increasing recognition by consumers of the great importance of milk as food for adults as well as children, dried milk will come to be largely used in cookery without diminishing the consumption of milk in fluid form; that the drying of milk both as a means of preservation and of greatly reducing transportation costs will permit the extension of the milk industry into regions too far distant from large markets to ship milk in fluid form; that because of this extension of the source of supply, the greater consumption of milk in its different forms should not necessarily result in higher prices; that the drying of milk will greatly facilitate the production and handling of milk in the South, where lack of natural ice so greatly hampers the fluid milk industry and where an increased use of milk in the diet is so urgently needed and will doubtless do more than anything else toward the lowering of the infant death rate and the suppression of pellagra among adults."

We believe that the dairy interests have been guilty of amazing shortsightedness in fathering such anti-milk legislation. In the face of the best opinion of leading authorities on nutrition and food economics they have persisted in states where they have sufficient strength in legislative halls in trying to force through laws to restrict and hamper the manufacture of various dried milk preparations.

We know of no one aside from the dairy farmers and a mere handful of misinformed consumers who are in favor of such pernicious legislation.

Respectfully submitted,

C. E. WRIGHT,

Editor, The American Food Journal.

Dried Milk Commended By Food Experts

Committee on Nutritional Problems of American Public Health Association Urges Development of Industry

IN a recent report, the Committee on Nutritional Problems of the American Public Health Association lays stress on the great importance of development of the dried milk industry as a means of increasing, conserving and marketing the milk supply of the country.

This committee, of which Prof. H. C. Sherman of Columbia University, New York, is chairman, has also as members C. E. A. Winslow, E. L. Fisk and I. Greenwald.

In the interest of the public health it is maintained that the American milk supply should be increased more rapidly than at present so that the country may have a larger per capita consumption of milk in its various forms.

Milk Should Be Preserved

Pointing out that the increasing of the milk supply of cities and towns by bringing fresh milk from greater distances must necessarily add to the cost, it is suggested that the seasonal surplus of milk produced in the market milk areas should be preserved by condensing, evaporating or drying to a larger extent than at present. Such preserved forms of milk (either as such or after being "remade" to the composition of fresh milk) "shall play an increasingly important role in the food supply of the future."

A portion of the committee report reads as follows:

"In view of the recent development of new methods of studying food values through feeding experiments with laboratory animals, it would seem well worth while, if funds could be found, to institute a thorough investigation of the relative nutritive values (from all standpoints) of condensed, evaporated and dried milks. In the absence of the detailed information which can only be obtained by such investigation we shall not here attempt any comparison of these three forms of preserved milk, but will consider only the question of dried milk and dried milk products.

Sanitary Aspects of Dried Milk

"Probably the three most important points to be considered are: (a) the sanitary aspects of the milk-drying industry; (b) the nutritive value of dried milk and its products, (c) the possible effects of a dry milk industry upon the dairy industry and milk supply as a whole.

"The cleanliness of a dry milk product will obviously depend in large measure upon the cleanliness of the milk which was dried; and sanitary conditions in the factory and the details of method employed will largely influence the opportunities for recontamination of the dry product during handling and packing. Milk-drying establishments should naturally be subject to the same inspection as other food factories with reference to the sanitary aspects both of the materials and the methods which they employ. On the other hand, the ordinary processes of commercial drying are more efficient even than pasteurization in destroying the bacteria

originally present in the milk, and the product is no longer in danger of secondary decompositions and is no more subject to secondary contamination than any other dried food. Dried milk may be considered, for practical purposes, as free from danger of the transmission of epidemic disease, except under the rarest and most exceptional circumstances, and its general use should mark a distinct gain from the standpoint of sanitation.

"The nutritive value of dry milk and its products has been the subject of extended study and report under the auspices of the Local Government Board of Great Britain and has likewise been treated in several publications of the United States Public Health Service. Some of us have been privileged also to see a report upon the use of dried milks as human food prepared by Dr. E. V. McCollum for the International Health Commission, and have been connected with laboratory investigations in which dried milks have constituted the chief part of experimental diets.

Nutritive Value of Dried Milk

"The evidence which has come to us from these different sources is quite consistent, and plainly places dried milk with pasteurized milk as regards the various factors of food value. In both cases the only significant change which occurs as the result of the heat treatment with its attendant manipulations, if properly conducted, is a diminution of the antiscorbutic vitamin. This has already been recognized as a possible result of pasteurization and it is now a generally accepted practice to give orange juice or some other

suitable antiscorbutic to all infants artificially fed on any other than fresh raw milk. The orange or tomato juice thus given primarily as an antiscorbutic is undoubtedly beneficial in other aspects of nutrition as well, and with this addition to the diet it becomes unnecessary to debate further as to the extent to which the antiscorbutic vitamin present in the milk is diminished in the drying process or whether there is greater destruction when the drying is accomplished by one mechanical process than by another.

"The original vitamin content of the milk, its freshness when dried, and the manner in which the drying process and the subsequent handling of the product is conducted are all factors of possibly equal importance with the mechanical principle on which the drying process is based. It is important also to remember that the processes for drying milk are still undergoing development and modification. In our opinion, it would be a mistake to prejudice the development of the industry at this early stage by any expression of preference as between the different drying processes, based merely upon consideration of the antiscorbutic vitamin. We think it much better to recommend that an antiscorbutic be given in all cases in which dependence is placed upon either pasteurized or dried milk by whatever process prepared. In

A REPORT OF SPECIAL IMPORTANCE

In view of the growing demands of the dairy interests for legislation forbidding the manufacture and sale of dried skim milk and restricting in various ways the marketing of condensed, evaporated and dried milk preparations, the report of the Committee on Nutritional Problems of the American Public Health Association, given herewith, assumes special importance.

The report not only sets forth the nutritive value of dried milk, even for infant feeding, but urges the development of the industry to a greater degree as a means of increasing and conserving the milk supply of the country.—EDITOR

fact, in view of the dependence of the antiscorbutic value of milk upon the diet of the cow (or of the mother), it may be advisable that all children receive an antiscorbutic.

"Aside from the question of antiscorbutic vitamin which easily can, and in our opinion always should, be provided from other sources, we believe that milk dried by any of the modern methods properly conducted is the equivalent of the fresh milk from which it was prepared.

Favorable Results in Infant Feeding

"The British report above referred to states explicitly 'that cow's milk, during the process of desiccation, loses none of the characters which are necessary for the support of normal growth in infants.' The United States Public Health Service also reports highly favorable results from the use of dry milk products in infant feeding. McCollum records most excellent results from the addition of dried milk as sole milk supply to the dietary of an institutional group of children, and many experiments could be cited in which dried milk as a sole food has supported good health and normal growth in the rate or periods much longer than would correspond to infancy and early childhood in the human subject.

"We believe there is ample evidence to support the position taken by the commission on milk standards that there is no occasion for prejudice or discrimination against dried milk as compared with pasteurized milk even as concerns the most delicate factors of nutritive value.

"Since the best standards of nutrition and health require not only the conservation of our present milk supply but its increase, in order that the per capita consumption of milk may grow with the knowledge of the food value of milk and its proper place in the diet, it is important that the drying of milk be considered also from the standpoint of the effect of this industry upon the dairy industry and milk supply as a whole.

Advantages of Drying Milk

"In his paper on 'Remade Milk and Cream,' presented at a special conference of the International Association of Dairy and Milk Inspectors in April, 1919, Redfield summarizes as follows the claims made for remade milk and cream:

1. They are very valuable for making up the shortages which normally occur in the fall of the year and are much cheaper than 'accommodation' milk and cream.
2. There is a great saving in transportation with regard to labor, car space and refrigeration when milk powder and butter are shipped instead of liquid milk.
3. Powder and butter preserve milk in the condition it was in on leaving the cow and prevent the undesirable and very possibly deleterious changes which occur during the holding and shipping of liquid milk.
4. Cities not surrounded by a dairy section or cities in a hot climate can be provided with as good a milk supply as cities more favorably located.
5. The price of milk and cream would be stabilized because powder and butter could be put away in the time of plenty and held without appreciable deterioration until the time of shortage.
6. Waste is prevented and the food supply is conserved because each distributor can make just what he needs each day and will never have an excess to spoil on his hands (or

to be made into butter and cheese at a money loss because he has paid market milk prices and transportation charges on his raw material for butter and cheese and so cannot compete with the country creamery).

7. A much more uniform body and flavor can be obtained in cultured milks if remade skim milk is used than if natural skim is employed. The claim is made that there is, moreover, a shortage at all seasons of the year, in cities, of natural skim milk which is acceptable in quality for making cultured milks.

Will Benefit Dairy Industry

"At the annual convention of the same association in December, 1919, G. B. Taylor, market milk specialist of the Dairy Division, United States Department of Agriculture, discussed the 'Effect of Remade Milk on the Dairy Industry,' basing his report upon letters received from heads of dairy departments in the state agricultural colleges to whom he had written asking for an expression of opinion. The great majority of these heads of dairy departments reported their belief that the powdered milk industry will be a benefit to the dairy industry and to agriculture in general, as stated in the following reasons:

- a. It will help stabilize the market for dairy products.
- b. It will help solve the problem of surplus milk.
- c. It will increase the use of milk generally, especially in countries where, on account of climatic conditions, the use of milk has been restricted.
- d. It will not compete directly with the market milk industry, but will be used principally for cooking, for bakeries and confectioneries.
- e. The manufacture of skim milk powder would be an advantage to dairymen since the prices realized by them in supplying milk for this product are very satisfactory.
- f. The more uses milk is put to, the better it is for the dairy farmers.

Will Not Injure Market for Fluid Milk

Concluding the committee says:

"The opinion is widely held and in our judgment well founded, that the dry milk industry will not seriously compete with or in any way injure the fluid milk industry as it now exists, but, rather, will supplement it and make possible the good use of its seasonal surplus; that with increasing recognition by consumers of the great importance of milk as food for adults as well as children, dried milk will come to be largely used in cookery without diminishing the consumption of milk in fluid form; that the drying of milk both as a means of preservation and of greatly reducing transportation costs will permit the extension of the milk industry into regions too far distant from large markets to ship milk in fluid form; that because of this extension of the source of supply, the greater consumption of milk in its different forms should not necessarily result in higher prices; that the drying of milk will greatly facilitate the production and handling of milk in the South where lack of natural ice so greatly hampers the fluid milk industry and where an increased use of milk in the diet is so urgently needed and will doubtless do more than anything else toward the lowering of the infant death rate and the suppression of per-lagra among adults."

Watermelons and Seeds Used for Many Purposes

In its studies of the control of watermelon diseases the United States Department of Agriculture has found that there are numerous uses for watermelons outside of their consumption as a popular fruit, according to a recent bulletin. Housewives have long been familiar with pickles and preserves made from watermelon rind.

In China and other oriental countries watermelon seed is used as a table delicacy. Seedsmen in this country not only ship seed for this purpose, but also find a market for their product in the Chinese districts of New York and San Francisco.

Within recent years a firm in Alabama has undertaken to manufacture vinegar from the juice, and from Russia come reports that during the past few years of hardship concentrated watermelon juice has been used in place of sugar to sweeten coffee.

To Stop Use of Coal Tar Dyes in Pennsylvania

The Bureau of Foods of the Pennsylvania Department of Agriculture has established a definite working program for the current year and agents of the bureau have been instructed accordingly.

The principal items in this program are to drive the coal tar dyes and drugs from the bake-shops of the state, to stop the use of coal tar dyes and sulphur dioxide in the manufacture of weiners and other sausages, to prevent the use of sulphur dioxide in the manufacture of chocolate coated cherries and to stop the use of saccharin in the manufacture of soft drinks.

These constitute the principal violations of the Pennsylvania pure food laws at the present time. In fact, the above violations constitute more than eighty per cent of the violations that the agents of the Bureau uncover.

FOOD LEGISLATION

New York State Legislature Passes Food Bills

Several Measures Adopted in Session Which Adjourned About the Middle of March

IN addition to the so-called Ferris skimmed milk bill, which is printed in full elsewhere in this issue, the New York State Legislature prior to its adjournment about the middle of March passed several other food bills which were sent to Governor Miller for his signature or veto. Under the law the Governor has thirty days from the date of passage in which to take action.

One bill introduced by Mr. Ferris, who was also the author of the skimmed milk bill, so-called, relates to adulteration of foods and drugs and specifically provides for the omission of a paragraph relating to adulterated maple sugar and honey, which is in the present law and reads as follows:

Any person, company or corporation "who shall adulterate maple sugar, maple sirup or honey with glucose, cane sugar or sirup, beet sugar or sirup, or any other substance for the purpose of sale, or who shall knowingly sell or offer for sale maple sugar, maple sirup or honey that has been adulterated in any way; or violates any provision of section 390 of the general business law, relating to canned or preserved food" is guilty of a misdemeanor. The matter within quotation marks is that which the bill repeals.

Certification of Grades of Farm Products

A bill introduced by Mr. Witter provides for amendments to the farms and markets law in relation to grading of foods and farm products. A change of the word produce to products is a new provision and there is a further provision that not only shall there be inspection of farm products to determine the grade and condition, but that the inspectors shall issue certificates as to the grade of such products and the State bureau of farms and markets is empowered to "establish official grades for foods and farm products and prescribe the use of such grades, and provide for the marking, packing and shipping of foods and farm products as graded."

Another bill by Mr. Witter, which passed both houses, provides for the repeal of article four of the public health law in relation to adulteration of foods and drugs.

A bill introduced by Mr. Dickstein relates to kosher meat and provides that section 435 of the penal law is amended to read as follows:

"Sells or exposes for sale any meat or meat preparation and falsely represents the same to be kosher, or as having been prepared under and of a product or products sanctioned by the orthodox Hebrew religious requirements; or false represents any food product or the contents of any package or container to be so constituted and prepared, by having or permitting to be inscribed thereon the word 'kosher' in any language; or sells or exposes for sale in the same place of business both kosher and nonkosher meat or meat preparations who fails to indicate on his window signs and all displays advertising, in block letters at least four inches in height, 'kosher and nonkosher meat sold here'; or who exposes for sale in any show window or place of business both kosher and nonkosher meat or meat products who fails to display over such meat or meat preparation so exposed a sign in block letters at least four inches in height reading 'kosher meat,' or 'nonkosher meat,' as the case may be."

The effect of this bill is to make it necessary for all kosher food stores and meat markets who sell both kosher and nonkosher products to display a sign to that effect.

The New York State bill defining "concentrated commercial feeding stuffs" is amended by a bill introduced by Mr. Ferris, which passed both houses, so that milk by-products are

added to other materials from which such commercial feeding stuffs may be prepared.

Maryland Margarin Bill Has Been Defeated

A bill regulating the sale of oleomargarine in Maryland and presented by Senator R. S. Snader was defeated in the House of Delegates of the Legislature, largely through the activity of the Institute of Margarin Manufacturers. The bill prohibited the coloring of margarin any shade of yellow and provided that the names of all ingredients must be stated on the label, that the retail dealer's name be stamped on the wrapped packages of margarin and that manufacturers of margarin pay an annual tax of \$1,000, wholesale dealers \$500, retail dealers, \$100, hotels and restaurants, \$50, and boarding houses \$10.

Senator Snader who presented this bill, has prepared a second bill, but as the first was killed in the House of Delegates the second cannot be introduced into the house except by unanimous consent, which is considered to preclude any chance of its passage this year.

This is believed to be the only margarin legislation pending except the bill recently passed by both houses of the New York Legislature, which has been signed by Governor Miller. This bill prohibits the sale of margarin "made in imitation or semblance of natural butter, the product of the dairy." It also prohibits "the storage or display of such articles with other merchandise." It is simply a word for word copy of the old margarin bill of the State and prohibits the sale of artificially colored margarin. Under this bill it will no longer be necessary in New York State to seal prints of margarin and indent them with the word "oleomargarine." J. S. Abbott, secretary of the Institute of Margarin Manufacturers, states that the bill was amended at the request of A. M. Davis of the Nucoa Butter Company and himself.

States Making Rulings on Sales of "Waste" Vinegar

The recent decision of the United States Department of Agriculture on branding of vinegar made from evaporated apple products is reported by the bulletin of the American Cider and Vinegar Manufacturers' Association, Rochester, N. Y., to have met with the full approval of numerous state food and dairy commissioners, who are, in many instances issuing rulings governing the sale of "waste" vinegar in their respective states.

The field forces of the Department of Agriculture and state food inspectors have been instructed to investigate any evident misbranding of waste vinegar and if justified make seizure. The association states that what is now needed is education of the retail grocer and the buying public on the difference between cider vinegar and vinegar produced from evaporated apple products.

Cold Storage Bill Is Reintroduced in Congress

A bill to regulate shipments of cold-storage foods in interstate and foreign commerce, has been introduced in Congress by Senator Norris. This bill is identical with the measure reported out of the Senate committee on agriculture and forestry and passed by the Senate during the last session of Congress. A similar bill was passed by the House but the legislation failed when Congress adjourned because the conferees could not come to an agreement on the changes made in the original draft of the bill.

New Jersey Also Adopts a "Filled Milk" Bill

ON March 11 Governor Edwards of New Jersey attached his signature to the Sexsmith bill, passed at the recent session of the New Jersey Legislature, which fixes standards for condensed milk which are in conformity with those promulgated by the United States Department of Agriculture and in force in a number of other states and which also aims to prevent the sale as milk or as a milk product a mixture containing foreign fats, which, it is claimed, do not have the same growth-promoting properties that milk fats do.

A statement attached to the bill explaining this latter feature of the bill, which is aimed at so-called "filled milk" compounds, says: "Even though labeled to show that such foreign fats have been added, evidence has been gathered which shows that such adulterated milk products are sold as being the real article, and if used for infant or child feeding do not have the growth-promoting properties of the genuine article and would therefore be injurious to the health of children. The passage of this legislation would prevent the sale of such imitation products."

This legislation is in line with the Ferris bill passed at the recent session of the New York State Legislature and the law in Wisconsin, which is being attacked in the courts of that State by the Hebe Company of Chicago, manufacturer of a milk compound known as Hebe.

The pertinent portion of the New Jersey bill is as follows:

Section 1. For the purpose of this supplement condensed, evaporated or concentrated milk is defined as the product resulting from the elimination of a considerable portion of the water from the fresh, clean lacteal secretion, colostrum free, obtained by the complete milking of cows properly fed and kept; said product to contain, when made from whole milk without added sugars, all tolerances allowed, at least twenty-five and five-tenths per centum of milk solids including at least seven and eight-tenths per centum of milk fat; when made from the whole milk with added sugars, all tolerances allowed, at twenty-eight per centum of milk solids including at least eight per centum of milk fat, and when made from skimmed milk to contain, all tolerances allowed, at least twenty per centum of milk solids.

Section 2. No person shall distribute or sell or manufacture for distribution or sale or have in his possession with

intent to distribute or sell any condensed, evaporated or concentrated milk which shall not conform to the minimum standard set forth respectively in section one hereof, and which if contained in hermetically sealed cans, does not bear stamped or labeled thereon the name and address of the manufacturer thereof.

Section 3. No person shall distribute or sell or manufacture for distribution or sale or have in his possession with intent to distribute or sell any milk, cream skimmed milk, condensed, evaporated or concentrated milk, powdered, dried or desiccated milk or ice cream or any of the fluid derivatives of any of them, to or with which has been added, blended or compounded any fats or oils other than milk fats, either under the name of said products or articles or the derivatives thereof under any fictitious trade names whatsoever; provided, however, that nothing in this act shall be construed to prohibit in the manufacture of ice cream the use of fresh eggs, pure gelatine or vegetable gums or the sale of ice cream so manufactured.

Section 4. No person shall distribute or sell or manufacture for distribution or sale or have in his possession with intent to distribute or sell any condensed, evaporated or concentrated skimmed milk in containers unless each said can or container bears the name and address of the manufacturer or distributor distinctly branded, indented, labeled or printed thereon, together with the words "condensed skimmed milk," or "evaporated skimmed milk," or "concentrated skimmed milk," as the case may be, in Roman letters of a size as large as any other words or letters appearing on said brand indentation or label and in no case less than one inch in height and one-half inch in width.

Section 5. Every person who shall violate any of the provisions of this act shall be liable to a penalty of fifty dollars for the first offense and to a penalty of one hundred dollars for the second and each subsequent offense. Payment of a penalty for any alleged violation of this act, either before or after the institution of proceedings for the collection thereof, shall, for the purposes of this act, be deemed equivalent to a conviction of the violation for which such penalty was claimed.

Further sections provide for the enforcement of the act by the same boards and in the same manner as the act to which this is a supplement. It becomes effective ninety days after its passage. All acts or parts of acts inconsistent with the above are repealed.

New York Adopts "Filled Milk" Bill

(Continued from page 13)

milk or cream, or any article or substance into which any oil, lard or fat not produced from milk or cream enters as a component part, or into which melted butter or butter in any condition or state or any oil thereof has been introduced to take the place of cream.

§ 63. Manufacture and sale of imitation cheese and sale of skim-cheese. No person shall manufacture, deal in, sell, offer or expose for sale or exchange any article or substance, in the semblance of or in imitation of cheese made exclusively of unadulterated milk or cream, or both, into which any animal, intestinal or offal fats or oils, or melted butter or butter in any condition or state or modification of the same, or oleaginous substances of any kind not produced from unadulterated milk or cream, shall be introduced. The prohibitions in this article against the sale of cheese made from adulterated milk or cream, shall not apply to pure skim-cheese made from milk which is unadulterated except by skimming.

§ 64. Regulations in regard to skimmed milk and products other than cheese manufactured therefrom. 1. The prohibitions contained in this article against the sale of adulterated milk shall not apply to skimmed milk as defined in section forty-six, which is unadulterated, except by skimming, if it is sold for and as skimmed milk.

2. No person shall sell or exchange, or offer or expose for sale, or exchange, any condensed or evaporated skimmed milk, except it be in containers or packages containing ten pounds avoirdupois net weight or more, which containers or packages shall be distinctly labeled, branded or marked in block letters not less than one-half inch in height, with the

words "Condensed Skimmed Milk" or "Evaporated Skimmed Milk";

3. No person shall manufacture, sell or exchange, offer or expose for sale or exchange, or have in his possession with the intent to sell or exchange any condensed, evaporated, concentrated, powdered, dried or desiccated milk, cream or skimmed milk to which there has been added, or with which there has been mixed, blended or compounded, any fats or oils, other than milk fat, so that the finished product shall be in imitation or semblance of condensed, evaporated, concentrated, powdered, dried or desiccated milk.

§ 2. This act shall take effect April first, nineteen hundred and twenty-two, except that subdivision two of section sixty-four as hereby amended shall take effect October 1, 1922.

Senate, No. 1369.

William Ziegler, Jr., President of Royal Baking Powder Company

On the resignation of Willis L. Carey, as president of the Royal Baking Powder Company, William Ziegler, Jr., was unanimously elected to that office at a meeting of the board of directors.

Olive Growers Organizing

A co-operative organization, to be known as the California Olive Growers', is being formed in California to be to that industry what the raisin, prune, peach and nut exchanges are in their own fields. This year's crop will be handled.

Food Products Institute of New Jersey is Organized

MANUFACTURERS of food products in New Jersey met in Newark on March 24 to form a state organization. Samuel Mueller, president of C. F. Mueller Company, macaroni and egg noodle manufacturers of Jersey City, presided, and Dr. Frederic Dannerth, director of the Food Products Laboratory of Newark, was appointed secretary of the meeting.

Mr. Mueller said that the demand for a state organization was growing stronger as was evidenced by the large number of letters he had received from prominent firms in the State. More than 24 of the leading firms had expressed their interest in the proposed organization. The chairman said the aims of such an association should be: 1. To better conditions and promote the welfare of the food producing industries of the state; 2. To make possible a practical and scientific study of food values; 3. To limit membership to such firms as can qualify by meeting the standards set by the society; 4. To promote research in the food industry by providing a laboratory for this purpose; 5. To promote the consumption of Jersey-made products within the State.

After an extended discussion of the possibilities of the society it was voted to organize it under the title Food Products Institute of New Jersey. The chairman then announced the following as members of the committee on organization and program: Russell Kingman, president, Purity Cross Inc., canned meats, Orange; Adolph E. Fink and L. F. Keller, president and vice-president, A. Fink & Sons, pork packers, Newark; Joseph Fischer, president, Fischer Baking Company,

Newark; Jack Augenblick, vice-president, Augenblick & Bro., butter producers, Newark; George W. Beardsley, president, Beardsley Sons, shredded codfish, Newark; Gustav Wiedenmayer, president, Puritan Ice Cream Company, Newark; Gilbert Easton, president, Easton Mayonnaise Company, Newark; William Jorden, president, Consumers Dairy Company, Union Hill; William Meister, president, Meister-Lullman-Stretch Dairies, Jersey City; Thomas Eckerson, president, Holland Butterine Co., Jersey City; Samuel Muller, president, C. F. Mueller Company, macaroni makers, Jersey City; Dr. Frederic Dannerth, director of the Food Products Laboratory, Newark.

A committee to draft a constitution and plan for a big turnout of the food men of the state was formed with Russell B. Kingman, Orange, N. J., as chairman. The invitation to join the newly formed Food Products Institute is being extended to dairymen, milk producers, and ice cream makers; bakers of bread and pie; pork packers, canners of meat and fish; canners of fruits and vegetables; coffee and cocoa roasters; makers of condiments, salad dressings, and spices; producers of sugar, honey and glucose; producers of oleo and nut margarin; makers of frozen eggs and egg powder.

Firms desiring to receive an invitation for the forthcoming meeting should send the name of their managing executive to Dr. Frederic Dannerth, Food Products Laboratory, 96 Academy Street, Newark, N. J., temporary secretary of the Institute.

"How to Pack It" Title of New Hinde & Dauch Booklet

A new 32-page booklet issued by the Hinde & Dauch Paper Company, Sandusky, Ohio, entitled "How To Pack It," is replete with illustrations and descriptions of the company's line of corrugated packing board and the various forms in which it is offered to the trade for packing foodstuffs and breakable material. Each variety of board, unlined corrugated board, single faced and double faced, is shown and its uses explained in detail. Shipping boxes of many of the food manufacturers using Hinde & Dauch board for packing are shown in photographs of containers labeled and filled with bread, butter, macaroni, canned goods and dried foods, eggs and bottled liquids. Various types of bottle and flask wrappers are shown, such as single and double wrappers, single faced round shell wrappers, open shell wrappers, octagon shaped, joined cartons, liquid boxes and other boxes of various shapes including three-piece and two-piece telescope boxes and those with metal corners and single and double lids. Attention is also called to the glue and tape manufactured by the company for use in packing.

The insulated nature of this packing, produced by the cellular construction of the board, is pointed out as of value to shippers of commodities affected by extremes of temperature, as the two surfaces of the board, separated as they are by dead spaces, render the board highly resistant to heat and cold. In addition, it is claimed, the corrugations between the two faces of paper, actually form an effective truss when under pressure. A test for waterproof qualities applied to each roll of paper used, it is explained, is to fill with water a small paper pail made from the roll, after which the container is left hanging for several hours.

Wisconsin Proceeds Against Artificially Bleached Flour

Prosecution of persons or firms having artificially bleached flour in their possession for sale or for use within Wisconsin is threatened by J. Q. Emery, dairy and food commissioner, in a statement following an investigation by his department.

This investigation, conducted by Harry Klueter, chemist, and C. J. Kremer, senior food inspector of the department,

is said to have established that flour treated by any process no in use so as to artificially whiten it, is in violation of the statutes.

Notice is being given, Mr. Emery said, to all persons and firms who have bleached flour in their possession that it must be withdrawn from sale at once. The result will be, he declared, that thousands of family-sized packages of artificially bleached flour are being withdrawn from sale and are being replaced with flour having the natural color found in wheat.

"The larger mills represented in Wisconsin flour markets co-operate with the department in keeping artificially bleached flour out of the stores," Mr. Emery said. "If it finds its way in through an error of a jobber along the boundary lines near Minnesota, Iowa or Michigan, it is promptly picked up and replaced with unbleached flour."

The department is said to have been conducting a campaign for some months to secure the complete enforcement of the statute against artificially bleached flour.

Experimental Laboratory in Canning for California Urged

A motion recommending the erection and operation of a new laboratory for experimentation in cannery practice by the Board of Regents of the University of California was adopted at the recent convention of the California Cannery League.

Professor W. V. Cruess of the fruit products laboratory of the university agricultural department presented the subject to the convention. He urged a canning plant to supplement the work now being carried on in the small laboratory at Berkeley. Such a laboratory, he said, would provide a means of instructing students in canning and afford opportunity for research work and demonstration of new products. His estimate of the cost of a fruit products laboratory of commercial size was \$75,000, which could be maintained for about \$15,000 a year.

Professor A. W. Christie, who also spoke favoring the establishment of such a laboratory, pointed out that the canning interests of California are second only to the petroleum industry in importance. He also said that the fish canning industry is maintaining an experimental station that has proved to be of great value.

WHAT OUR READERS SAY

Editor's Note: Readers of The American Food Journal are invited to make this Department an Open Forum for the discussion of any subject of interest to the food trades.

Commercial Dehydration of Bananas

Editor, The American Food Journal:

By courtesy of the "Literary Digest" of January 7, 1922, I note a review of an article written by Oscar James Vogl in your journal on the subject of dehydrated bananas. Although we have been operating, experimenting, and improving our product for more than a year, Mr. Vogl's account of the German method is the first scientific advice we have seen. It seems strange that so well known a fruit as the banana should have been so little exploited in this manner as to be practically unheard-of in the United States in this form of the appetizing and edible "banana fig."

It may be of interest to others to learn that the United States Pure Food Bureau has just recently objected to the use of the name "banana fig" as being misleading; in consequence, we have had to abandon that title and contemplate calling the fruit by its rightful name, i. e., just bananas.

We have been delivering the dried fruit for some time in California, which is convenient to our position here on the west coast and is the home of our company. There we find the product either unknown or regarded with distrust on account of previous sporadic efforts made to introduce a class of goods that could not be depended upon either in quantity or quality.

The results of our experiments in dehydrating bananas agree very closely with the data of Dr. Herman Luthje, as submitted by Mr. Vogl. However, we cannot tell except by actual sampling how nearly our article approaches the ideal as we have never seen any but our own.

We think we are in a position now to assure a large and dependable output of high class fruit produced under sanitary conditions and at present are looking for a reliable concern in the east which can be depended upon to push the introduction of this new conserve.

Very truly yours,

H. R. WILSON,
Wilson & Sons,
Mazatenago, Guatemala.

January 30, 1922.

Believes Self-Rising Flour Great Help to South

Editor, The American Food Journal:

The articles in your journal recently concerning self-rising flour are of great interest and importance to those in the flour business.

Mr. A. M. Henry, the author of one of these articles, is in a position to speak from personal experience and has unusual opportunities to get actual facts from the consumers of self-rising flour. Also, he is not in any business affected by the sale of self-rising flour. His opinions, therefore, are not influenced in any way.

Practically all of the complaints I have heard are from firms making baking powder, their sales, of course, being reduced by prepared flour.

In one of the articles, it was charged that a great dear of the self-rising flour was returned to the mills and re-dosed with salt, phosphate and soda. Now I have never seen this done in my nine years' experience with self-rising flour and am certain that this practice is very rare indeed.

Self-rising flour has been a great help to the people of the South who want hot bread. The soda and phosphate are added in just the right proportions to make the best biscuits

from each kind of flour and eliminate practically all of the troubles of the hot-bread baker.

Of course, there are some poor self-rising flours, just as there are some poor baking-powders, coffee and flavoring extracts, but now with chemical laboratories in nearly every mill and extensive testing of all ingredients used, the average prepared flour is of a very good quality.

Looking at it from the standpoint of healthfulness, I should say that a good light biscuit is far more healthful than a soggy one or one which contains an excess of soda—which only too often is the result when plain flour and baking-powder or soda are used. I take great pleasure in reading your journal and only wish you would print more about the greatest food of all, wheat flour and bread.

M. H. PARLIN,
Milling Chemist,
1400 Spruce Street,
Leavenworth, Kansas.

Will Welcome Sound Legislation

Editor The American Food Journal:

I have read with interest several papers and letters that have appeared in your journal on the subject of self rising flours. I do not think that they are really fair to the honest manufacturer.

I believe that I know this game pretty well having been in it for a number of years.

Our practice is to use only the best materials—quality is the first consideration. The same grades of flour go into our self rising as go out under our regular brands and blends without the self rising ingredients in them—soft winter wheat patent and straights. Certainly we use soft winter wheat flour—why call it inferior? The gluten may be comparatively low, but the quality is often much superior to hard wheat flours. It is much superior to hard wheat flours for cake and biscuit making.

The other ingredients—acid calcium phosphate, soda and salt—are the best obtainable. They are tested and properly adjusted by actual laboratory tests.

The ingredients are weighed by automatic machinery, dumped into large mixers and mixed. The batch is tested and then packed out by automatic machinery. Why shouldn't it be all right if made right?

The housewife who has used good self rising flours would not go back to the old guess work way of making biscuit. Given all the ingredients, the flour, baking powder, salt, milk and fat, the average housewife cannot make as good a biscuit as she can with a good self rising flour. The convenience appeals to her. Mix in the fat, make up to a soft dough with milk, cut out and bake. No fuss, no worry.

These flours keep remarkably well. The returns on them are very small.

The good, honest manufacturer will welcome any good sound legislation for the control of this business. If he has a good honest product, made right, sound legislation will help rather than hinder him.

C. A. A. UTT,
Chemist, C. A. Gambrill Mfg. Co.,
Baltimore, Md.

FOOD NEWS FROM WASHINGTON

Calder Bill Opposed in New Bill By Senator Ladd

New Measure, It is Claimed, Would Take Away Control of Food Products From Federal Government

By CLARENCE L. LINZ

Washington Bureau, The American Food Journal, 622 Albee Building, Washington, D. C.

A MEASURE designed to replace the Calder bill defining original packages, has been introduced in the Senate by Senator E. F. Ladd of North Dakota, formerly food commissioner of that State. Senator Ladd has been consistently opposed to the Calder bill, although that measure has been widely approved by business men and organizations. The Calder bill provides that an article of food shipped in interstate commerce shall not be molested under the State laws, provided such article is legally labeled under the National Food Law.

The Ladd bill provides that "no article of commerce within a State shall be deemed to be in interstate commerce or subject to the Federal control or jurisdiction until the same shall have been loaded for shipment and the bill of lading provided for its transportation beyond the borders of the said State and until such time it shall remain subject to the laws of the State. Any article or product shipped from one State to another and billed to its destination shall cease to be treated as in interstate commerce when at the said destination it is unloaded or removed from the system or means of transportation employed in conveying said article or product and shall then be subject to the provisions of the State laws."

It is further provided that in the enforcement of this act each State shall have full and complete control of the supervision and regulation of its interstate commerce as defined by the measure, and all agencies lawfully established by the State shall have full authority in the field thereby prescribed for them, subject to the review of courts of jurisdiction.

The Calder bill was designed to afford food manufacturers relief from the lack of uniformity between the National Food Law and the various State regulations. Advocates of the measure assert that the effect of the Ladd bill would be to destroy the doctrine of the protection of interstate commerce as now extended to goods in the original package. Also, it is claimed, the bill would practically nullify the right or power of the Federal Government to make seizures of adulterated or misbranded articles under the provisions of section 10 of the Food and Drug Act. The Ladd bill would permit seizure only so long as the article remained in the original unbroken package, while as a matter of fact, seizures are frequently made after goods have been in warehouses or deposited on the premises of the consignee.

Section 5 of the bill proposes to vest in the State Utilities commissions full and complete control of the supervision and regulation of intrastate commerce as defined in the measure. Such supervision and control was recently taken away from the State boards by decisions of the Interstate Commerce Commission, which asserted itself over intrastate commerce when a part of interstate commerce.

"The bill is not intended to interfere with the right of the Federal Government in the seizure of food products coming into or going out of a State," said Senator Ladd. "A product coming into a State ceases to be the subject of interstate commerce when it reaches its destination and is unloaded, and enters the commerce of the State. A product going out of the State becomes interstate commerce only when it is loaded on the cars and billed to depart from the State.

"The bill is intended primarily to cover wheat. Under a recent decision of the United States Supreme Court it was held that wheat going into an elevator could not be inspected by the State of North Dakota because it was then in interstate commerce since the elevator was an instrumentality of interstate commerce. That leaves the producer in North Dakota without any protection within the State to ascertain that he has a square deal, with regard to grade, dockage, and weight, and leaves the State to protect the producer the same as the elevator man is protected when his products reach the terminal market.

"When it comes into the State and is unloaded and mingles with interstate products then it comes under the jurisdiction of the State. The bill determines that it becomes intrastate when it reaches the State and is turned over to the man who purchases it in the State. Up to that time the Government has complete control over the product and there is nothing to prevent the Government from inspecting unopened packages after the period of arrival. It is not intended in any way to hamper the Federal authorities. The chief purpose of my bill is to get rid of the twilight zone. Different courts along the line from the local courts to the United States Supreme Court have at different times ruled differently on various cases. This is for the purpose of clearing up so that there will be uniformity in all cases."

Calumet Baking Powder Company is Cited

Manufacturers of Self Self-Raising Flour Complain to Trade Commission, Alleging "Unfair Competition"

UNFAIR methods of competition in defiance of the Federal Trade Commission act are charged against the Calumet Baking Powder Company, Chicago, in a formal complaint which has just been issued by the Federal Trade Commission. The respondent is engaged in the manufacture and sale in interstate commerce of baking powders which come into competition with so-called self-rising flour, which consists of wheat flour into which are mixed certain leavening agents similar to those contained in baking powders, and intended for the same purpose. The commission charges that in an effort to protect its baking powders from this competition the company adopted the practice of publishing statements derogatory to self-rising flour.

Paragraph two of the commission's complaint points out that "whenever self-rising flour is used it displaces to that extent, the use of baking powder. Self-rising flour is produced by a number of manufacturers who cause their product when sold to be transported from the place of manufacture to the purchasers thereof in the several States of the United States. Wherefore the manufacturers of self-rising flour are also engaged in interstate commerce within the intent and meaning of said act. That respondent in order to protect the use and sale of its baking powders against the competition of self-rising flour, adopted a practice of publishing to the purchasing public adverse, disparaging and derogatory opinions, statements, and comments as to the wholesomeness of self-rising flours, which practice it put into operation on an extensive scale and carried into effect vigorously throughout a wide area of population. The wholesome quality of self-rising flour is not capable of determination by absolute test or standard but is in last analysis a matter of expert opinion as to which reputable authorities may well differ. Respondent carefully concealed its connection with and interest in the various methods, devices and agencies through which this practice was carried into effect and caused the expressions, opinions and comments to seem to be either anonymous and therefore disinterested, or the voluntary contributions of disinterested and technically qualified authorities or persons acting in the public interest. Respondent has used

this practice for several years and still continues to use it. The practice as carried into effect by respondent tends to create a state of mind in the purchasing public which is detrimental to the purchase and use of self-rising flours and consequently tends to the injury of the business conducted by the manufacturers thereof. Such publication by respondent of adverse, derogatory and disparaging expressions, statements and opinions with reference to the wholesomeness of a competitor's product, on an extensive scale and over a wide area of population, in the guise of disinterested and expert opinion, the connection with, the responsibility for, and the interest of the respondent therein being concealed and undisclosed, the subject matter being one lying not in absolute determination but in expert opinion, is an unfair method of competition in commerce within the intent and meaning of Section 5 of an Act of Congress entitled, 'An Act to create a Federal Trade Commission, to define its powers and duties, and for other purposes,' approved September 26, 1914."

A hearing will be held at the offices of the commission on April 27 at which the respondent will be given an opportunity to show cause why an order should not be entered requiring the discontinuance of the violation of law charged. Prior to that date, however, the company is required to file with the commission an answer to the allegations made in the complaint.

Daniel R. Forbes of Forbes and Daniels, attorneys for the Calumet Company, says that the advertisements referred to in the complaint are largely reprints from several medical journals, written by recognized medical authorities on the composition and healthfulness of self-rising flours. He points out that the complaint does not allege that the advertisements are false or misleading, but takes the position that expert scientific opinions may not be distributed to the public without the name of the manufacturer or advertiser attached. Mr. Forbes claims that the issue is really on the legality of reproduction of scientific works, independent of advertising copy or material.

Says Reduction of Freight Rates Would Stimulate Business

EARLY reduction of freight rates as an aid to the business of the country is urged by Representative Mott, of New York, in a letter to the Interstate Commerce Commission. A reduction of rates and the passage of the tariff bill, he declares, will open up many factories that are now closed because of lack of trade.

"I hope and trust the Interstate Commerce Commission at an early date may deem it wise and proper to reduce freight rates on the railroads," said Mr. Mott. "I understand that the Commission has been holding hearings for some time and that representatives of many classes of industry have urged a reduction. I do not speak for any particular class of freight but urge that a reduction be made in all rates. The interests of the manufacturer and the laboring man are closely linked together, and the prosperity of the farmer is a matter of moment to all. Reduction of railroad rates would help all lines, I believe, and through them help every man, woman and child in the United States.

"Present rates are almost prohibitive, I am told, in some cases, and seem excessive in almost all. Reduction would, I

am satisfied, bring in such an increased revenue to the roads as to help materially in bringing them back to the prosperous conditions of former years before the war, and good conditions on the railroads would largely help in bringing back the country to normal. In other branches of industry reductions have taken place to a greater or less extent, and it is not fair that freight rates should be the only necessary charge on the people which does not go down.

"Passage of the tariff bill and reduction of freight rates will open up many a closed factory and bring bread and butter to many a man and woman now out of employment. I am assured that the Senate is speeding up its work on the tariff, and I trust that your commission will do everything in its power to give the people lower freight rates so that the normal movement of farm and factory to the consumer may be resumed. I have every confidence that the commission will render a just decision but I feel I must write you of the great desire of the country as I find it for lower rates. Let's go back to normalcy. Congress is trying to do its share."

EDITORIAL

Stupidity and Shortsightedness of the Dairy Interests

The dairy interests, it seems to us, have exhibited amazing stupidity and shortsightedness in their efforts to crowd through legislation to restrict the manufacture and sale of dried milk preparations, particularly those so-called "filled" milk compounds which consist of a mixture of skimmed milk and coconut fats. Not content to await the outcome of the litigation in Wisconsin, where the constitutionality of the law of that State relating to such compounds has been attacked, they have jammed through a bill in New York State of similar purport and the bill has been signed by Governor Miller.

In New York the "farm bloc" in the Legislature was too strong to overcome the objections that were raised in the hearings that were held. The bill was rushed through at the last minute of the session when a large number of new laws were enacted at the rate of about one a minute in a mad rush for adjournment.

The stupidity of the dairy interests lies in their apparent belief that they can successfully sustain such legislation for long in the face of the overwhelming opinion of the country's leading nutrition experts that such milk preparations are not a menace to public health, as the dairy interests allege them to be.

Their shortsightedness lies in the belief which apparently they hold that the increasing manufacture and sale of dried milk preparations will eventually reduce the consumption of fluid milk. Food economists disagree with this theory as strongly as do nutrition experts with the claim of injury to the public health.

There is no stronger adherent in professional food circles of the value of milk as a food than Professor H. C. Sherman of Columbia University. Yet Professor Sherman, as chairman of the Committee on Nutritional Problems of the American Public Health Association, strongly recommends the development of the dried milk industry to a greater degree and as positively upholds the nutritive value of dried milk. Even skimmed milk, around which much of the current discussion has centered, is favored by Professor Sherman's committee, which supports the view that "The manufacture of skim milk powder would be an advantage to dairymen since the prices realized by them in supplying milk for this product are very satisfactory."

The introduction of the linotype typesetting machine was regarded by printers as a catastrophe. They believed it would mean loss of occupation for many of them. It worked the other way—it was the beginning of the greatest development in the printing industry and created more jobs for everybody. Likewise the manufacture of dried milk preparations will create new markets for milk. These preparations can be shipped to countries and sections where at present little, if any, cow's milk is used because of climatic or other conditions. Instead of the growth of the dried milk industry becoming a menace to the dairy farmers it will eventually turn out to be a boon for them. At present they are too blind or too ignorant of economic laws to see that fact.

Effect of High Freight Rates on the Cost of Food

SOME INTERESTING EXAMPLES of the reasons for the high food prices were recently given by J. W. Herscher, president of the National Wholesale Grocers' Association. While there has been a decided decline in food prices, the

high freight rates have prevented the consumer from participating to the full extent in the decline. Although the wholesale grocer is, today, declared to be operating on the margins of profit in effect in 1914, freight rates are entirely out of proportion.

Another important factor in the high cost of food to the consumer is the high charges on less than carload lots, compared with carload lots. Although this is a small item to the wholesale grocer and the companies operating chain stores, it adds materially to the prices paid by the individual retail grocer who cannot afford to purchase by the carload.

An example of the increase in rates that is charged on less than carload lots, the freight rate on canned vegetables from Chillicothe, Ohio, to Charleston, W. Va., is 24½ cents per 100 pounds. A typical haul from Charleston is 97 miles to Hinton, W. Va., and the less-than-carload rate is 45 cents per 100 pounds.

A comparison of freight rates on food products today with the rates prevailing prior to the war shows an average increase of 75 per cent while a comparison of certain food prices shows an average increase of 34.1 per cent. Beans at \$4 per 100 pounds, shipped from Michigan to Ohio River points in 1913 and 1914, took a freight rate of 20 cents, while in 1921 and 1922 beans at \$5 took a rate of 42 cents for this shipment. Flour from Kansas to Pittsburgh points in 1913 and 1914 cost about \$5.25 per barrel and cost to ship 40 cents per barrel. In 1921 this flour at \$7 per barrel, cost \$1.40 per barrel to ship, an increase of 47 per cent in the product and 250 per cent in the freight.

Comparing prices of October, 1921, with the pre-war prices, corn-meal had increased about 16.8 per cent; baked beans, 14.8 per cent; canned tomatoes, 52 per cent, and coffee, 7.8 per cent.

Since June 24, 1918, there has been a double advance upon many food items because of changes in classification. From Milwaukee, Wis., to Chicago, the advance has been about 325 per cent. On preserves from El Paso, Tex., to Deming, N. M., the advance has been about 214 per cent and over 200 per cent represents the advance on jellies shipped from Sacramento, Cal., to Reno, Nev. The advance in rates on fruit butter from Milwaukee to Chicago has been 412 per cent and on peanut butter from Sioux City, Ia., to Sioux Falls, S. D., 287 per cent. The increase on vinegar from Chicago to Kansas City is 343 per cent.

While there has been an average decline in the cost of commodities of more than 50 per cent from the high price peak, freight rates at from 150 to 425 per cent above the pre-war figure interfere greatly with passing the benefit of this decline to the consumer.

Mennen Decree Establishes New Principle in Trading

IT appears that the recent ruling of the Federal Trade Commission in the case of the Mennen Company, talcum powder manufacturers, is likely to have far-reaching effects in the food trade. The Trade Commission held that the Mennen Company was guilty of unfair practices in having one set of prices for wholesalers and another set for retailers or other distributors. The commission lays down the rule that a manufacturer must sell his products, if they are uniform in quality, at absolutely the same price to all purchasers of the same quantity, whether the purchasers be wholesalers, retailers, chain stores or buying clubs. If this ruling is sustained in the courts, to which it will undoubtedly be appealed, it will work havoc in established principles of trading.

BOOK REVIEWS

Contribution to Problem of Antiscorbutic Vitamin

Effect of Temperature and Hydrogen Ion Concentration upon the Rate of Destruction of Antiscorbutic Vitamin, by Victor K. LaMer, Columbia University. Published by the author in partial fulfillment of Ph.D., copies furnished on request by the author. New York, 1921.

Attention has been given to the vitamin C, in a quantitative way, in the research by Victor K. LaMer of Columbia University Chemistry Department, entitled "Effect of Temperature and Hydrogen Ion Concentration Upon the Rate of Destruction of the Antiscorbutic Vitamin." Too much of the work on the subject of vitamins has been purely qualitative. Methods which give quantitative data are especially desirable. Dr. LaMer has described a method whereby it is "possible to determine the percentage destruction of the antiscorbutic vitamin which occurs when a foodstuff is subjected to the deleterious effect of heat." Large numbers of animals were observed for considerable periods of time, and both microscopic and macroscopic examinations were faithfully made. A comparison of basal diets for guinea pigs led to the use of the following as the most satisfactory basal diet:

Skim milk powder	30 per cent
Ground whole oats	59 per cent
Butter fat	10 per cent
Table salt	1 per cent

The skim milk powder was heated in an air bath at 100 to 110 degrees to make certain that all vitamin C was completely destroyed. The first symptoms of scurvy appeared after animals had been fed upon this diet for 12 to 14 days. Death occurred at the end of 27 to 34 days. Autopsies were made upon the bony system; and location of hemorrhages were carefully observed. Symptoms were classified as mild, moderate, moderately severe, severe, or very severe.

Dosage of protective food extract was based quantitatively upon 300 grams of body weight. With additions of three cubic centimeters of unheated tomato juice per 300 grams body weight, growth equal to normal was obtained whenever the animal ate sufficiently of the basal diet. Samples of the juice were heated at 100 degrees centigrade for one to four hours, with or without additions of alkali, and preserved in the resulting form, or in some cases preserved after reacidification. The percentage destruction of the vitamin was calculated according to the formula, % destruction = $\frac{A-B}{A} \times 100$, where A is dosage fed and B the comparative dose.

Comparisons of treated material with untreated can only be made within a range in which scorbutic tendencies bear a definite relation to the amount of material fed. Accuracy of results are scrutinized. The method claims to be within a limit of error of 5 per cent. Destruction of the antiscorbutic property does not depend upon any critical temperature, but is a function of the time, temperature and hydrogen ion concentration. "The extent of the deleterious influence of heating depends more upon the length of time than it does upon the intensity of the process, while for longer periods (4 hours or more) the effect of the intensity assumes greater prominence in comparison to the time than it did in the shorter period." The vitamin is more stable in acid than in neutral solution. Neutralization of less than one-half the natural acidity produces a significant change in rate of destruction; 58 per cent is destroyed instead of 50 per cent. Storage of the juice in an alkaline condition increased the destructive effect. Destruction by atmospheric oxygen was considered of little importance in these experiments. It is suggested that the heat destruction may be of the nature of an intramolecular oxidation such as occurs when sugars are heated in alkaline solution.

The hydrogen ion concentrations were determined electrometrically, as described by Thomas and Baldwin, using saturated calomel electrode. When natural acidity was reduced by addition of alkali, from Ph 4.3 to Ph 9, the velocity of destruction increased from 50 per cent to 61 per cent for one hour heating at 100 degrees C. When reacidification was omitted, and juice remained alkaline at 10 degrees for five days, the per cent destruction rose to 90 and 95 per cent. The temperature co-efficient is of surprisingly low order, fixed at 1.2 for the interval 60-80 degrees and 1.1 for the interval 80-100 degrees. In view of this and the colloidal nature of the tomato juice, the destructive action is not considered similar to the destruction of an enzyme, since the author points out that the vitamin is not likely to be of enzyme nature itself, for "if it were we could not expect to find the greater heat stability, and low temperature co-efficient of destruction that we do when compared to that found for enzymes studied."

It is especially commendable for a worker to apply the exacting methods of physical chemistry to the problems of nutrition. This is what Dr. LaMer has done in a carefully controlled manner.

JUANITA E. DARRAH.

A Careful Compilation on Vitamins

The Vitamine Manual. A Presentation of Essential Data About the New Food Factors, by Walter H. Eddy, associate professor of physiological chemistry, Columbia College, Baltimore. Williams and Wilkins Company, Baltimore, 1921.

The eight chapters of this little volume of about 87 text pages are devoted respectively to the discovery of vitamins; their probable chemical nature; the methods in use for testing with a separate chapter on the yeast test of vitamin B; the sources of vitamins; their chemical and physiological properties; their utilization in diet and the diseases due to vitamin deficiency.

According to the preface the work is brought up to April, 1921. The vastness of the subject is shown by the 28 closely printed pages of bibliography, the accumulation practically of about ten years only of research and observation.

In the historical sketch we find no mention of the alleged anticipation of the discovery of vitamins by Magendie about 1835. This is said to be in one of the later editions of that author's physiology, and if well authenticated would be of interest sufficient to warrant a mention in the second edition. The reviewer has read a very substantial account of Magendie's feeding experiments and inferences from the same, and unless something has been read into them that goes beyond the author's own statements, the latter constitute a remarkable claim for priority. It is very probable that Magendie's successors erroneously attributed the results of certain defective diets to deprivation of mineral matter in the cortex of cereal grains.

The author has neglected to supply an analytical index which is a very unusual omission for an American book, although common enough in France. The limited space available for discussing so voluminous a subject naturally leads to much omission. Thus in some parts of the Continent, as Switzerland, there are preparations of vitamins—extracts of rice cortex, etc.—on the market. We find no mention under the head of vitamin deficiency diseases of the results of inanition in the blockaded countries during the war. It is noteworthy that as a rule no close connection could be traced between the famine diseases and absence of vitamins. Again, there is no allusion to the growth functions of certain aminoacids, and while technically these are not reckoned among the vitamins it would have been of interest to mention them in this connection. The author is eminently sound and dependable on all of the subjects actually discussed, and makes no attempt to belittle the somewhat confused state of our knowledge of vitamins at the present moment.

EDWARD PREBLE.

MACHINERY AND EQUIPMENT

Advantages of Vacuum Drying of Food

Descriptions of the Methods to be Followed for Preservation of Various Edible Products

By JOHN DOUGHTON
(Buffalo Foundry & Machine Company)

DRYING in the preparation of food products, either for preservation or convenience in handling, has been in use for centuries, but only within recent years has it been placed upon a scientific and efficient basis. Originally, the material to be dried was merely exposed to air under ordinary temperature and pressure, which besides being incomplete in result was both slow and costly. Drying by the vacuum method has been found to be more rapid and consequently more economical as a means of drying most materials.

One of the advantages claimed for vacuum drying is that materials may be dried under vacuum at a much lower temperature than is possible under atmospheric conditions, where the temperature of the material must be raised to 212 deg. F., the boiling point of water, in order to vaporize the moisture contained. As this is practically impossible with most food products, it has not been found feasible to dry many foods that might be handled more conveniently or preserved better in a dry state.

In the vacuum dryer the boiling, or vaporizing point, can be maintained at any required temperature, it being possible to dry some delicate materials that would be injured by excessive heat, at a temperature of about 75 deg. F. The vaporizing point of the moisture being removed depends upon

contact with air or oxygen. Control of temperature possible at all times in this method increases the certainty as to the quality of the dried product. As the drying is independent of atmospheric and climatic conditions, extreme changes in humidity and other atmospheric conditions do not effect the uniformity of the dried material. This is a great difficulty where changes of conditions are possible, as the result is apt

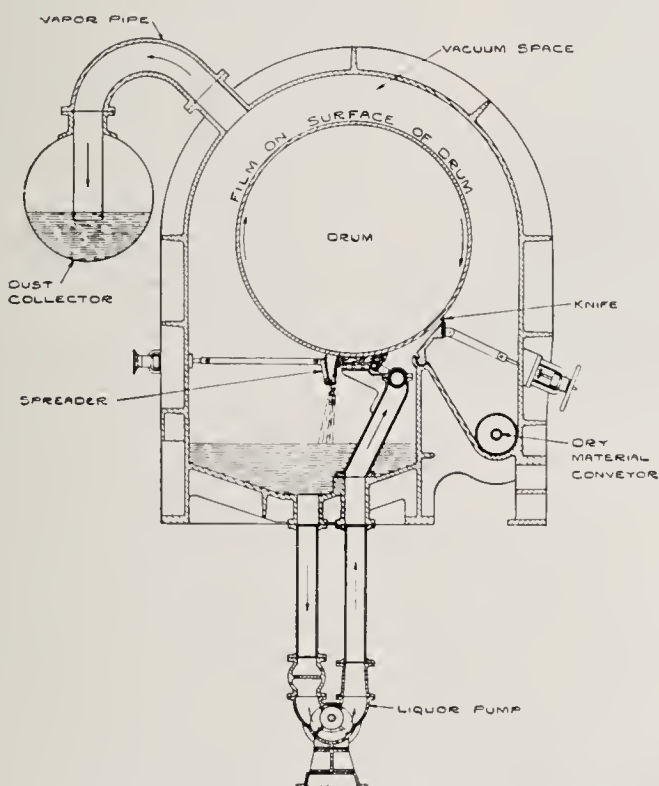


Fig. 1. Principal of operation of vacuum drum dryer

the height of vacuum maintained in the drier. The possibility of working with such low temperatures naturally removes the danger of overheating. Another danger, that of contamination, is also eliminated, as currents of heated air do not pass over the material, for the dryer is exhausted of all air and the drying chamber maintained at a high vacuum.

Advantage of Temperature Control

Oxidation of the material being dried, which is often experienced in handling some products, ceases to be a possibility as when the food is in the vacuum it cannot come into

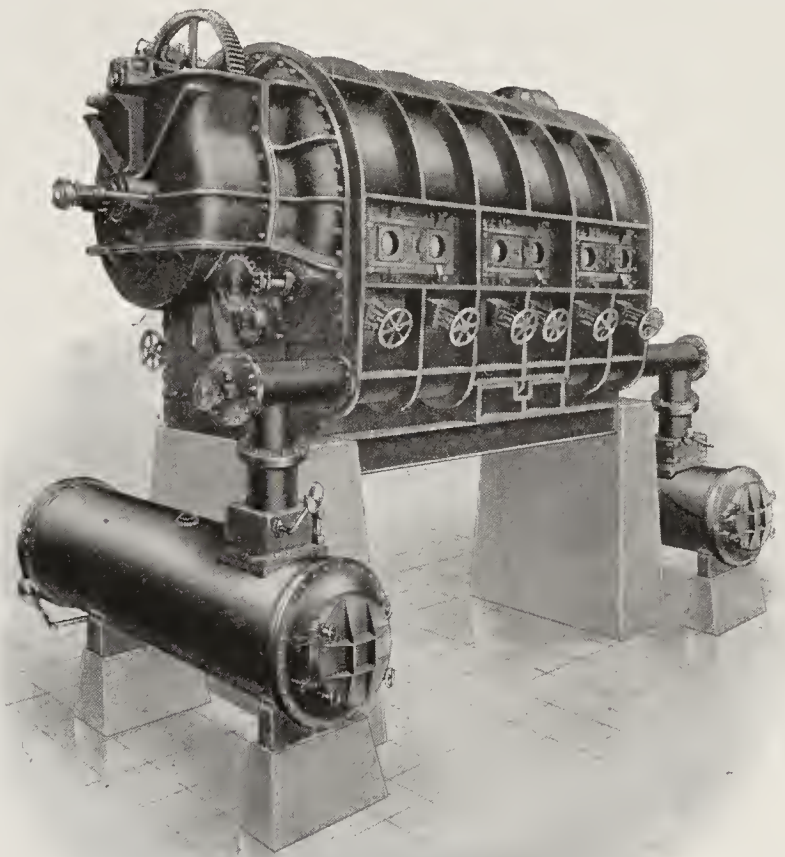


Fig. 2. Exterior of drum dryer

to be lack of uniformity, which affects not only the appearance and texture but may affect the keeping quality of the product. Materials give up moisture much more rapidly under vacuum and as a result many products may be dried in a fraction of the time that would otherwise be required. In some instances materials that would ordinarily take a few days or even weeks to reduce to a completely dried condition are fully prepared in a few hours.

Food and related products, which may be successfully dried by the vacuum method include such products as plain milk, malted milk, butter milk, whey, ice cream mixtures and other milk products, eggs, albumen, pepsin, instant soluble coffee, coffee substitutes, cocoa, tea and other beverages, breakfast foods, malt extracts, soup extracts, meats, fish, clam juice, gelatin, confectionery, starch, tapioca, potato flour, flavoring extracts, bananas and other tropical fruits, shredded coconut, cereals, grain products, salt, sugar, condiments, yeast and various food specialties.

Three Types of Vacuum Driers

Three different types of vacuum driers are necessary for handling materials, it being possible to divide all materials to which the process of drying could be applied into three groups. In the first group, which includes all kinds of

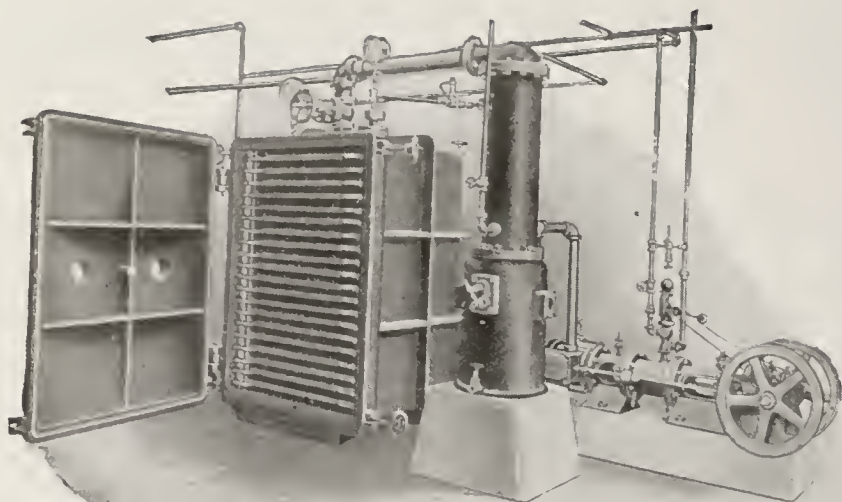


Fig. 3. Vacuum shelf type dryer

liquids, the most suitable type of apparatus is the vacuum drum drier. This drier has a vacuum chamber with a hollow heated revolving drum, in which the liquid is applied to the drum and the dry material removed. The line drawing (Fig. 1) shows the method of operation. The liquid to be dried is pumped from the bottom of the casing to the pan under the drum, which, as it revolves, receives a coating or thin film of liquid, the thickness being regulated. By the time the material reaches the knife or scraper, which removes it, the moisture has evaporated and the material is removed from the drum in a dry state.

The oscillation or ebullition of many liquids under vacuum when heat is applied was the source of some difficulty in the early development of this type of vacuum drier. This ebullition prevented a uniform coating of liquid, where the drum dips or is partially submerged. Lack of uniform dryness was the result. This and subsequent difficulties, however, were later overcome by the addition of various devices.

The second group of materials includes those which must be spread out in a flat pan or on trays while being dried. Here a vacuum shelf type of dryer is suitable. The vacuum chamber in this dryer contains a series of shelves, on which the loaded pans or trays of material are placed. These shelves are hollow and may be heated

either by steam or hot water, depending upon the maximum temperature which is possible in handling the particular type of material being dried. This type of drier is illustrated in Fig. 3. In operating a drier of the shelf type the shelves must be kept level, otherwise the bottom of the pan containing the material will not come into actual contact in some places with the heating surface of the shelf, and, as the inside of the chamber is a vacuum, practically no heat can be transmitted to the material at such points of non-contact. Properly constructed this type is productive of highly satisfactory results in drying a wide range of food products.

Drying by Agitation

The third of the groups of materials, which need different treatment to produce satisfactory results, includes those products which either require, or are greatly assisted, in the drying by agitation. For this group a vacuum rotary drier is applicable. This drier consists of a stationary cylindrical shell with a steam jacket. The interior of this shell is fitted with a revolving heated tube, to which is attached a series of arms and stirring paddles as illustrated in Fig. 4. The

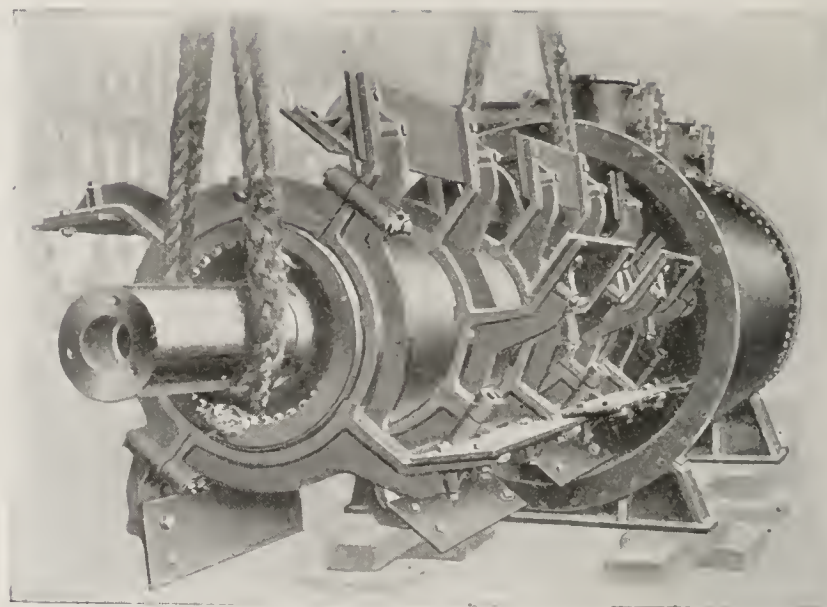


Fig. 4. Interior of vacuum rotary dryer

space between the center tube and steam jacket is the vacuum chamber. The revolving paddles keep the material being dried in constant motion, so that it comes into frequent contact with the heated surfaces until sufficiently dry. This type may be used for both evaporating and cooking when necessary in drying food products, the cooking being completed in the same apparatus prior to creating the vacuum for drying.

Where the moisture being removed has any value and for products that become dusty, condensers and dust collectors prevent the loss of such material.

Adaptable though it is to many food products, vacuum drying has not been used extensively in drying ordinary fresh fruits and vegetables, the chief obstacle being the initial cost of an installation, compared with the simpler types of dehydrators in use. This disadvantage, however, is balanced largely by the cleanliness and uniformity of quality in its products.

Peanuts Valuable Food and Rich in the Amino Acids

Peanuts are high in food value, says the United States Department of Agriculture, but there is no foundation for the recently circulated report that peanuts promote the growth

of hair. Investigations carried on in the Bureau of Chemistry with regard to the chemical and nutritive properties of the proteins of the peanut have demonstrated that, aside from the oil, which is easily digested and which furnishes a large amount of fuel or energy, the shelled peanut contains about 20 per cent of protein of a high nutritional quality. A report says:

"Peanut protein is rich in the amino acids which are lacking in the proteins of corn and grain, and for that reason peanuts are an excellent supplement to a cereal diet, whether in the form of a meal or press cake fed with corn and cereal feeds to animals or as a supplement to wheat protein when used with wheat flour in bread making.

"The erroneous idea that eating peanuts will affect the growth of hair may have arisen from the fact that hair, wool, feathers, and similar animal tissues, when analyzed, show a relatively large amount of cystine, which is one of the amino acids present in protein. Even were the assumption true that by eating foods containing cystine the growth of hair could be stimulated, it would not apply in the case of peanuts, which do not contain as high a percentage of cystine as many other common foods."

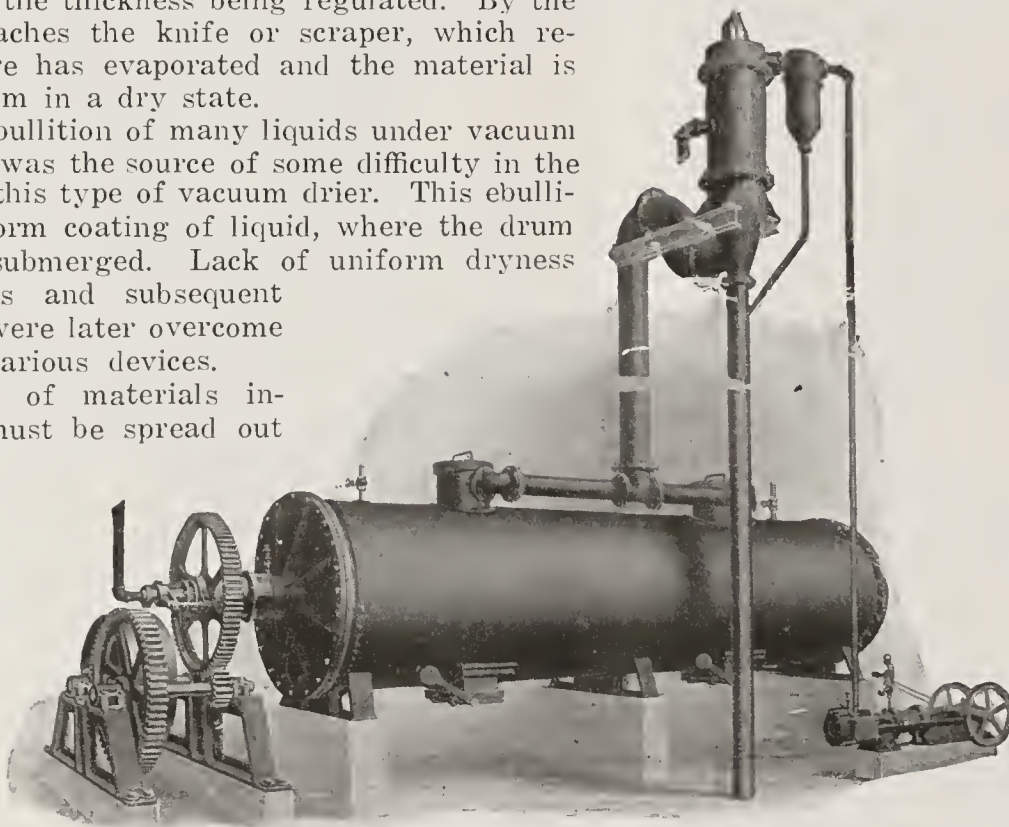


Fig. 5. Exterior of rotary dryer

NEWS OF THE FOOD TRADES

Predicts Increase in Demand for Foods

Thomas E. Wilson of Meat Packers' Institute Says the Turn Has Been Reached

Discussing the future outlook for the live stock and meat packing industry before the annual convention of the Texas and Southwestern Cattle Raisers' Association at Fort Worth, Texas, Thomas E. Wilson of Chicago, President of the Institute of American Meat Packers, said that he thought the turn has been reached and that "as business revives in the great industrial regions, the demand for food products will increase and commodities now subnormal in value should again become normal."

Packers Lost \$61,000,000 During Last Fiscal Year

Pointing out that the packing industry received a large part of the brunt of the effects of the general depression, Mr. Wilson stated that in 1920 five large packing companies—companies whose annual reports were most readily obtainable in published form—sold more than three billion dollars' worth of products at a net profit of \$7,218,000, and that in 1921 the same companies sold more than two billion dollars' worth of products at a net loss of more than \$61,000,000. He added:

Mr. Wilson urged the addition of one-half pound of meat each week to the diet of the American people. This, he said, would "add to the purchasing power of the farmer and lead to a general revival of industry."

"This additional demand," the president of the packers' association continued, "not only would bring consumption of meat back to the normal of twenty years ago, but think of the added stimulus it would give to the live stock markets if the demand could be thus created for four million additional cattle and ten million hogs. These animals, moreover, would consume 250,000,000 bushels of our surplus corn crop, and thus would be an additional advantage to agriculture."

Meat Packing Industry Is Composed of Many Hundred Establishments

"Few people," the president of the packers' association stated at another point, "realize the extensiveness of the slaughtering and meat packing industry either with respect to the number of establishments which comprise it, or with respect to the volume of its business as compared with that of other industries. Recent census figures show that more than 1,300 slaughtering and meat packing establishments supplied information for the 1919 census of manufactures. If we were to add to this figure the number of small slaughter houses which exist in great numbers in the smaller cities, villages and rural districts, we would obtain a total not only surprising as to size, but which should be convincing that there is genuine and widespread competition in the industry."

"The fact that we have been unable to save ourselves from enormous losses should be conclusive evidence that competition and the law of supply and demand operates

freely in our business, and that, owing to the perishable nature of our products, the packing industry is perhaps more sensitively responsive to its operation than any other industry in this country."

Exports Decrease in Quantity But Value Decreases More

In discussing the export situation, Mr. Wilson stated:

"Since the termination of the war exports have declined rapidly. During 1919, the peak year for exports, the United States exported more than 3,000,000,000 pounds of meat products, valued at approximately one billion dollars."

"During 1921 we exported only 1,946,000,000 pounds, or a quantity 40 per cent less than in 1919, and valued at less than \$300,000,000. This represents a shrinkage in receipts of about \$700,000,000 from export sales for 1921, as compared to 1919."

"This shrinkage in receipts meant a shrinkage in income for the producers of about \$600,000,000 from this source alone in 1921, as compared with 1919. The shrinkage in tonnage represents several million animals."

False Propaganda Has Influenced Public

Mr. Wilson characterized "the fostering and development by propaganda of an impression that meat is harmful to health" as one of the outstanding factors in declining meat consumption. "In this connection," he said, "meat has been misrepresented in a damaging fashion and in a widespread way. The food value of meat has been misstated, its place in the diet minimized, and its healthfulness challenged. People are naturally sensitive to any propaganda relating to their health. They are quick to avoid foods said to be harmful. In this way, no doubt, the public has been materially influenced."

"Almost every other food interest has made invidious comparisons of its products with ours to the disparagement of meat. Many of these comparisons have not reflected the truth from a scientific standpoint."

Texas Standardizes Peanuts

In standardizing Spanish peanuts in Texas, the following three grades have recently been established under regulations of the state government as the proper classifications for the product:

Grade No. 1 shall consist of peanuts which are sound, dry, fully matured, and which are practically free from dirt, stems, pops, other foreign matter, and shelled peanuts. In order to allow for variations incident to proper grading and handling this grade shall not contain more than two per cent of dirt by weight, and not more than five per cent of stems, pops, other foreign matter, and shelled peanuts.

Grade No. 2 shall consist of peanuts which do not fully meet the requirements of grade No. 1, but which are merchantable, and reasonably free from dirt, stems, pops, other foreign matter, and shelled peanuts. In order to allow for variations incident to proper grading and handling this grade shall not contain more than two per cent of dirt by weight, and not more than 10 per cent of stems, pops, other foreign matter, and shelled peanuts.

Grade No. 3 shall consist of merchantable unshelled peanuts which do not meet the requirements of grades No. 1 and No. 2.

European Demand for Canned Goods

War Stocks Practically Cleared—Japanese Competition in Salmon Increasing

In general, European trade in American canned goods, after a period of unprecedented prosperity during the war, has now returned to normal conditions, according to a recent report of the Bureau of Foreign and Domestic Commerce. Old-time prejudices against tinned foods, founded on the belief that they contained toxins and were injurious to health, have been effectively swept away through the extended use of these foods brought about by the war. The return to a free market in foodstuffs at the conclusion of the war, accompanied by the release of the surplus held by the Government and canteen organizations, broke the market to levels that excluded competition in fresh stocks. Clearing up of old supplies has proceeded much more rapidly in certain items than in others. Sales of corned beef and salted butter in the United Kingdom have been especially slow, but only a small part of stocks of these commodities is of American origin. In the principal items of American goods the surplus is fairly well cleared. In general, the American canned-goods trade begins 1922 in a better position both as to volume and value than in the pre-war period.

Consumptive tendencies vary widely in the different countries. In England there is a distinct movement toward the use of ready-prepared dishes, which helps the canned goods trade. This movement is due to the difficulty of securing domestic help and the high wages demanded. In France, however, where help is more abundant and where cooking is carried to a state of artistic perfection, ready-cooked foods are little used.

With purchases of American canned pig tongues, known by the trade name of luncheon tongues, are increasing. The ordinary beef tongue is too large and too expensive to be an item of popular diet. Pig tongue sold as luncheon tongue appeals to a considerable number of the British people in both taste and price. An Australian brand of sheep tongue, sold under the trade name of breakfast tongue, is competing with the luncheon tongue.

The market for American sausage in Germany and France has long been important and is capable of further expansion. At present the difficulties of finance are affecting the trade with Germany. The splendid keeping qualities of the American sausage enable it to withstand competition. The best season for the sale of the American product is from April to October, as during the winter months there is a supply of fresh sausage from native hogs.

The most promising field for development of trade in American tinned milk in the United Kingdom and France is in the unsweetened brands, which sell relatively cheaper than ordinary condensed milk in both markets. Expansion of the market for American condensed milk in central

Europe is strictly a question of finance. A flourishing trade would doubtlessly follow the establishment of credit facilities for the purchase of this and other American foodstuffs.

European imports of American pork and beans, sausage, and tongue in the past five years have been unusually heavy, and it is along these lines that the United States can best develop its meat-products trade. American brands of corned beef have been almost completely displaced by South American goods.

Canned salmon is one of the most highly esteemed of all American tinned foods marketed in Europe. England is the best market for this product at present. The war did not materially alter the normal trade in salmon. The amount of American salmon taken in 1921 was slightly smaller than the pre-war demand, partly because of the unloading of surplus war stocks and also because the particular brand demanded by the British trade is scarce and high priced. Surplus stocks of the high-class red salmon are not only fully cleared up, but the supply is less than the demand. As a result a taste for the lower grade pink salmon is developing and imports of Siberian supplies through Japanese channels are rapidly increasing.

American canned salmon is feeling as never before the force of Japanese competition. The raw material used by Japanese and American packers is of practically the same quality, but it is only within the past year or two that Japanese packing methods have approached the American standard.

An authority in the canned-goods trade estimates that Italy, now that old stocks have been disposed of, can use about 500 tons of canned salmon a month. Italian waters are not only greatly deficient in edible fish, but proper facilities are lacking for the transportation of fresh fish to market.

Nearly 342,000,000 Pounds of Materials used in Oleomargarine

A total of 341,955,688 pounds of various materials entered into the manufacture of 281,081,514 pounds of oleomargarine during the fiscal year ending June 30, 1921, according to the report of the Commissioner of Internal Revenue.

The difference of 60,874,174 pounds between the amount of oleomargarine manufactured and the amount of materials used is chiefly accounted for by the expulsion from the finished oleomargarine of the moisture content of the milk consumed.

The kinds and amounts of the various materials used during the fiscal year are given in the tabulation below:

Kind of material	Amount Pounds
Coconut oil	103,111,916
Milk	79,715,584
Oleo oil	49,675,749
Neutral oil	29,267,960
Salt	25,365,499
Cottonseed oil	18,532,860
Peanut oil	16,332,498
Vegetable oil	6,559,034
Oleo stearine	4,857,972
Oleo stock	2,065,231
Butter	1,498,625
Corn oil	925,999
Soy bean oil	461,129
Edible tallow	233,227
Mustard seed oil	109,748
Coloring	25,915
Miscellaneous	3,216,742
Total	314,955,688

European Markets for Corn Products

American Trade Commissioner Reports on Possibilities for Trade with Various Continental Countries—Educational Propaganda Necessary

An extended study of the market possibilities for American corn products in Europe is being made by Trade Commissioner J. A. Le Clerc, who reports to the Bureau of Foreign and Domestic Commerce that most of the European countries have formed an unfavorable opinion of these products, as the kind used during the war was generally of the nature of undegerminated corn meal, which, although of excellent food value if consumed while fresh, usually can not be kept very long without spoiling. The degerminated grits or meal will keep practically as well as wheat flour. Persistent educational propaganda, supplemented by demonstrations, to introduce the higher grades of corn products and remove the prejudice encountered in Europe against this valuable foodstuff would no doubt pay in the end.

Some cities in Europe, and even some countries, have regulations restricting certain uses of corn products, but wherever their use is permitted both the bakers and brewers using corn flour and corn grits are evidently competing successfully.

Use of Corn Flour and Groats in France

In France large amounts of corn flour were imported for use in bread making during the war and up to quite recently, but after the removal of all restrictions on the baking industry (August, 1921) no flour substitutes were used. Corn flour is used in some of the breweries, just as corn grits or corn flakes are used, generally in connection with American malt of high diastatic power. Under normal conditions the price paid in France for corn flour, much of which is purchased in Belgium, is such that it is quite possible for American firms to compete.

American maize groats cannot compete successfully with the excellent product of this kind manufactured in France from imported corn, as the whole grain is subject to a duty of only 6 francs per 100 kilos (220 pounds) and the manufactured product to 32 francs per 100 kilos. France imports a small amount of corn flakes from Belgium, and although it would be possible for American manufacturers to compete in this trade, the amount consumed is too small to be worth while. Flakes and groats are both used by the brewers, as they have approximately equal value as malt substitutes, but imported flakes can not compete in price with the groats manufactured locally from the imported grain.

An official of the Bureau de Revitaillement estimates that on account of the world scarcity of oats the French Army will require 100,000 tons of coarse cracked corn, free from meal, or small-kernel corn (such as the La Plata corn) for horse feed. If American corn were imported for this purpose the Government would probably be interested also in the purchase of mills suitable to crack the corn.

Most of the corn used in France comes from Argentina, that country supplying 22 times as much of the French corn imports in 1912 as did the United States, 35 times as much in 1913, and 10 times as much in 1919. Argentine corn is preferred because it is smaller and therefor better adapted for a poultry feed than the American product, which must be cracked and thus entails a certain amount of waste. It is also claimed that Argentine corn is sweeter and is thus preferred as a feed for horses, be-

sides containing 3 to 4 per cent less moisture than American corn, which enables it to stand transportation better and to keep in good condition longer. At present Argentine corn sells for 3 or 4 shillings more per quarter of 480 pounds than American corn, so price has nothing to do with the preference for the South American product.

It is not possible to sell corn grits in France for use as a substitute for rice, mainly because of the difference in price due to the tariff. Rice from the French colonies is admitted free of duty, whereas corn grits from foreign territory pays 32 francs per 100 kilos.

Corn and Corn Products in Belgium

Belgium also purchases the greater part of its corn supply from Argentina. Unofficial figures of the corn entering Belgium via Antwerp show that seven times as much Argentine as American corn was imported in the January-November period of 1921. The Belgian preference for the South American product is based on the same reasons as previously given for France. American corn is considerably cheaper, but the people seem to want a small-kernel, flinty grain. One objection named against the use of cracked corn, namely, its lack of keeping qualities as compared to the whole kernel, is worthy of consideration. To prevent the spoilage of cracked corn, its moisture content should be kept below 12 per cent, when it will keep for a long time.

Corn grits is used in brewing in Belgium, where there are some 30 large and about 1,000 small breweries. The large breweries are well equipped and use considerable amounts of corn grits, up to 30 per cent, in making beer. To supply this demand there are two large corn-grits factories in Belgium. The small brewers can not use corn grits because of lack of equipment, but they can use refined grits or starch, as is done by almost every small Danish brewer.

American Corn Controls Danish Market in 1921

Denmark imported more American corn than La Plata corn in 1921. Figures obtained from Consul General Letcher, at Copenhagen, give the imports from January to October, 1921, as 228,000 tons from the United States and 52,000 tons from Argentina. In 1920 the relative position of the two countries was reversed, the former supplying only 7,100 tons and the latter 252,000 tons. As the American product is cheaper, Denmark saved more than \$500,000 by purchasing the bulk of its supply from the United States. Danish farmers use small mills to grind the large-kernel dent corn. Cracked corn is not imported because of its tendency to "heat" and spoil.

Corn grits and refined grits are used by Danish breweries as adjuncts to malt. At present prices corn grits can easily compete with broken rice; furthermore, the rice used for brewing purposes is subject to a tariff and corn grits is free. Until recently some of the large brewers used as much as 30 per cent of grits, but now they can use only 10 per cent, owing to a recent regulation requiring that beer be made from a wort of 10 deg. Balling instead of 13 deg. as formerly. Although there is a reduction of only about one-fourth in the extract content of the wort, it means a curtailment of about two-thirds in the amount of malt substitutes that can be successfully used.

Prospective Demands for Honey Abroad

American Trade Commissioners Report on Conditions Affecting European Trade

A study of the commercial situation in Vienna by the American Trade Commissioner, leads to the conclusion that within a relatively short time that city will resume its former importance as a trade center for honey and wax, although the merchants must face many new difficulties, chief among which, is the variation in foreign exchange.

The question of American companies selling honey in Austria at present is largely one of price. Not only is honey popular in Austria, but the country does not produce sufficient to supply the demand. In addition, prior to the war, Vienna was a central point for the honey and wax trade of Austria-Hungary, and today is shipping honey and wax into the adjacent Balkan countries. Before the war Austria-Hungary ranked third among European honey producing countries, Germany and Spain leading.

While artificial honey plants have been established recently in Austria, there is a decided preference for the natural article, particularly strained honey, dark in color, packed in glass jars and with acacia or linden flavor. The most common sizes are 1 kilo, $\frac{1}{2}$ kilo and $\frac{1}{4}$ kilo (about 1 quart, 1 pint and $\frac{1}{2}$ pint) jars. As there is no import duty on honey, it should be possible for American sellers to do a good business, provided satisfactory quality can be sold at a price with reach of the Austrian buyer.

Imports of honey by Austria in 1920 amounted to 3,536,000 pounds, of which 3,312,000 pounds came from Czecho-Slovakia and only 95,000 from the United States. Raw wax imports from that year totaled 42,000 pounds, Germany heading the list with 19,000 pounds.

Belgian Production

According to a recent report on the honey situation in Belgium by Commercial Attache Samuel H. Cross at Brussels, there are 34,000 fixed hives in the country, each producing from 7 to 14 pounds annually.

Only about one-third of this is sold, the remainder being used as food for the swarms. This brings the estimated commercial output down to about 90,000 pounds annually. In addition, however, there are about 27,000 hives with movable frames, capable of an annual yield of 45 pounds each, bringing the total Belgian production close to 1,300,000 pounds.

Present production is about normal. Although import statistics show a decrease in consumption, this is caused largely by the increased use of artificial honey in gingerbread and the high price which honey is now bringing in Belgium. Exports of Belgian gingerbread practically doubled between the armistice and the end of 1920. Of late, however, price competition between bakers of gingerbread has led to the substitution of artificial honey with a resultant decline in the quality and a falling off in exports. The principal foreign honeys in jars, which are carried by Belgian dealers are of French (Breton) or English origin and one house in Antwerp imports small quantities of Cuban honey. Native honey is usually packed in small glass jars with non-screw glass tops, the surface of the honey being pro-

tected by waxed paper. English and French honeys are offered generally in airtight jars with tin tops. Any standard jar in half pound and pound sizes would apparently be satisfactory to the Belgian trade.

Imports Honey from Cuba and Chile

A report on this subject from W. C. Huntington, commercial attache at Paris, states that one of the largest retail grocers in Paris, with branch stores in the city and in the provinces, imports honey only from Cuba and Chile. The Cuban honey is preferred as it has a stronger flavor and is more highly colored than that from Chile. Extra white honey from California has been imported by this firm, but this was at a time when the exchange was favorable. While of excellent quality this honey was only imported when the exchange was favorable.

Italy, before the war, normally exported about 660,000 pounds of honey annually, chiefly to Austria, Germany, France and Switzerland. During the sugar shortage in the war, production fell off and large quantities were imported. First, purchases were made from Germany and later from the United States and Spain. It is estimated that Italy's annual need of imported honey should be 260,000 pounds. The varieties of centrifugal honey desired are white, aromatic, orange and alfalfa and 25 kilo (55 pound) cans are suggested for this trade. Californian, Cuban or Chilean strained honey of a uniform light straw color is usually in demand. The quality of honey shipped to Italy should be high, so that it will be appraised as natural, the natural product entering under a lower duty than the artificial. Honey competes with fruit preserves and marmalade in Italy. The net contents of the ordinary glass jar should be about 1 pound. Containers of this size now retail at from 7 to 9 lire each. Unless American producers can sell honey into the Italian market at a price which would permit of retail selling at from 5 to 7 lire, it would be difficult to do business.

Sausage Manufacturer Cited for "Unfair Competition"

The Federal Trade Commission has issued an order to cease and desist against Philipps Bros. & Company, manufacturers of sausage and pork products, Washington, D. C. The order is directed against the unfair method of competition practiced by the respondent in the labeling of its pork sausages in such a manner as to simulate in size, style of type, typographical arrangement and general appearance the label of a similar and well known product which has been marketed in the District of Columbia since 1859 by the Joseph Philipps Company.

Changes in Hinde and Dauch Organization

The Hinde & Dauch Paper Company, Sandusky, Ohio, announced recently the following changes in its executive personnel: Sidney Frohman has been made chairman of the board; Frederick Emmons, president; J. W. Harbrecht, vice-president; O. F. Rinderle, treasurer; C. N. Kiefer, secretary; W. F. Pfeiffer, assistant secretary; R. K. Ramsey, general counsel.

The Universal Grocery Company, Madison, Wis., will increase the number of its chain stores to almost double the present number this year. All of the new stores will be of the self-service type, and many of the present stores will be changed into self-service groceries.

Profits in Retailing of Groceries

Report Published After Investigation of New York City Stores Gives Analysis

An inside view of the costs and percentages of profit in operating retail grocery stores in New York City is given in a report just published by the New York State Department of Farms and Markets under the title of 'Retail Grocery Stores in New York City.' It contains an analysis of the volume of trading in different commodities in the average grocery store, a study of the various items of retail store costs which must be added to the price of food, the percentage of gross profit in the selling price of different commodities and a comparison of the expense of cash and carry and credit and delivery stores.

The report gives the results of extensive studies made in connection with publication of fair prices during the war period by the temporary New York State Food Commission. A large force of accountants and inspectors was used in the investigation over a period of several months and the results accurately checked. The lack of any public information of this kind as to retail grocery stores in New York led the Department of Farms and Markets to print a limited edition of the report for distribution to libraries, trade organizations and persons specially interested in food distribution problems.

Among other things the report shows that 35 per cent of the business of the average grocery store in New York City is in dairy products and eggs. Bread and flour come second with a total of 16.3 per cent and canned goods third with a total of 9.7 per cent. Sugar is 7.9 per cent. Fifty cents out of every dollar spent by the average grocer in buying stock goes for five commodities, butter, eggs, bread, milk and sugar. Percentage of gross profit on different grocery commodities varies as a rule almost directly in proportion to the volume of trading in those commodities. For example, the average percentage of retail gross profit for butter during the war-period was 7.84, based on selling price. On canned tomatoes, however, it was 20.31 per cent of selling price.

Percentages of Gross Profit

The percentage of retail gross profit based on selling of other important commodities were: eggs, 9.65, bread, 12.99, milk, 12.44, sugar 9.66, potatoes 23.53, flour 13.56, canned fish 19.87, cheese 15.05, onions 40.0, canned peas 19.18, and canned corn 18.42.

In middle-class neighborhoods of the city, the investigation showed that the average amount of capital invested was \$5,059 and the rate of turnover on investment 8.7 per cent. The average amount of stock carried was valued at \$3,326. The average annual sales per grocery were \$43,592. These figures were much lower for stores in poor neighborhoods and higher in wealthy neighborhoods. The rate of turnover on investment, however, was much higher in poor class stores and much lower in the wealthy ing 8.3 per cent.

The gross profit in percentage of the gross sales was 16.2 in middle class stores, 18.9 in wealthy class stores and 15.2 in poor class stores. An average of 83.6 per cent of the gross income from sales went to the purchase of merchandise. Expenses average 14.1 per cent and net return 2.3 per cent in addition to salaries and wages.

Sirup Production in 1921 90,000,000 Gals.

Reports Indicate that Sirup and Molasses Industry in the United States Has Expanded in Recent Years

The aggregate production of sirup in the United States totaled 90,000,000 gallons in 1921 and 92,000,000 gallons in 1920, according to the estimates of the U. S. Department of Agriculture. Production estimates for the sirups do not extend back of the last five years, but as far as they go the indication is that the industry as a whole is expanding.

Sorghum sirup production on farms was first ascertained for 1879 in the decennial census of 1880. The quantity continuously declined from 28,444,202 gallons in 1879 to 16,532,382 gallons in 1909. In more recent years the quality of sorghum sirup has improved, its production has increased greatly, and its character as a delicious as well as nutritious food is well established. Nearly 50,000,000 gallons were made in 1920 and nearly 46,000,000 gallons in 1921.

Cane Sirup Output Gains

Cane sirup, also, has gained a good reputation for quality and nearly 40,000,000 gallons are made yearly. The highest known production was 41,500,000 gallons in 1921.

Maple sirup gained in production, according to the figures of the Census Bureau, from 1,796,048 gallons in 1879 to 4,106,418 gallons in 1909, and the estimate of the U. S. Department of Agriculture for 1918 was 4,905,000 gallons. Since 1918 the quantity has declined, and the short period of "sap weather" in 1921 produced only 2,584,000 gallons. A much larger quantity than that will undoubtedly be produced in favorable seasons. Sirup made from maple sugar is not included in these figures.

Cane molasses is a by-product of the manufacture of raw cane sugar and during the last five years its production has ranged from 13,100,000 gallons to 30,700,000 gallons.

Sirup consumption averaged 72,738,000 gallons in the four years 1918-1921. During the same period the average consumption of sorghum sirup was 39,008,000 gallons and of cane sirup 29,990,000 gals. The per capita consumption was 0.69 gallon for all sirup, 0.37 gallon for sorghum, and 0.28 gallon for cane. About 8,000,000 gallons of sirup, mostly cane, were exported on an average.

Cane sirup is consumed mostly in the year following the year in which the production begins. The consumption of sorghum sirup is equal to the production and is largely, often mostly, in the year following the production year. Import figures for maple sugar and sirup are combined and reported in pounds—about 3,500,000 to 4,000,000 pounds in recent years—and are not added to the sirup production. No exports are reported. Maple sugar is consumed mostly in the production year, but partly in the year following.

Most of the cane molasses consumed in this country is imported. During 1918-1921 the average imports, less foreign exports, were nearly 124,000,000 gallons, and the domestic exports 5,600,000 gallons, so that the domestic production was only 16 per cent of the consumption. The cane molasses consumption during these four years averaged 1.33 gallons per capita. This kind of molasses is largely a stock-feed material.

American Sugar Company's Baltimore Appointment

Charles Syer, Portsmouth, Va., a prominent sugar broker of the South, has been appointed sales manager of the new Baltimore plant of the American Sugar Refining Company. In 1893, Mr. Syer, who was then aged 18, succeeded to the brokerage business of his father. Continuing to build up the business he added the account of the Franklin Sugar Refining Company in 1900. He was among the first to believe in the practicability of establishing a brand on sugar and since obtaining the account has

made Franklin sugar one of the well known brands in the Norfolk territory.

Carl F. Huttlinger, who has been appointed superintendent of the new plant is a chemical engineer, obtaining his degree at Columbia University in 1912. His first connection with the American Sugar Refining Company was as assistant chemist at the Jersey City refinery. In 1913 he became chief chemist, in 1918 was transferred to the refining division of the operating department and in 1919 was placed on the board of construction of the new plant.

Winfield S. Black, plant engineer of the new refinery, was born in Bristol, Pa., and served an apprenticeship of two years with the Leddons Carpet Mills and was later with the Corona Kid Company and the Kitson Light Company, Philadelphia. In 1903 he connected with the American Sugar Refining Company rising from draftsman to field equipment engineer in charge of mechanical equipment installations at the Baltimore refinery. He is a member of the American Society of Mechanical Engineers.

Comparison of British Foodstuffs Imports

The following table on comparative British imports prepared by the Foodstuffs Division of the U. S. Bureau of Foreign and Domestic Commerce, should be of general interest as indicating the probable trend of consumption of foodstuffs. The figures are arrived at in each case by taking the imports of foreign produce and subtracting the re-exports. As Great Britain exports very little home-produced food products, it is believed that the figure indicates reasonably well the trend of consumption.

In each case the average imports for the five-year period, 1910-1914, are taken to equal 100. In a general way the table shows that Great Britain apparently imported less grain than in the pre-war period but has considerably increased its imports of meat products. The increase is especially marked in both pork and lard, two commodities in which the pre-

war imports were very large. Also, imports of vegetable fats have shown a marked increase. However, both lard substitutes and margarin show a very large decrease, due, in part to the fact that Great Britain during the war increased its manufacture of these commodities and is now importing the raw products, such as vegetable fats and lard, for this purpose.

The marked increase in the imports of cheese is also of interest in connection with the increased imports of meat, as cheese is considered to be something of a meat substitute.

It is rather difficult to understand how Great Britain can be able to decrease to such a marked extent its imports of cereals unless there has been a considerable increase in the consumption of vegetables. This suggestion has been advanced but we have not been able to verify the statement.

Percentage comparisons of British net imports in 1920 and 1921, with the 1910-1914 average taken as 100; also for January, 1922, with the average for January, 1910-1914, taken as 100.

Commodities.	1920. Per cent.	1921. Per cent.	January, 1922. Per cent.
Breadstuffs:			
Wheat	105.08	76.48	71.33
Wheat flour	119.40	140.38	96.19
Corn and corn meal.....	89.87	95.05	70.43
Rice	42.87	119.95	35.41
Meat and meat products: (a)			
Beef	107.55	130.84	141.09
Mutton	123.42	127.45	45.24
Pork	100.60	112.15	113.09
Dairy products:			
Butter	41.78	82.26	102.06
Cheese	118.68	120.86	157.63
Condensed milk—			
Sweetened	155.27	142.55	156.43
Unsweetened	212.03	1,330.15	(b)
Eggs	36.83	54.90	55.33
Fruit:			
Fresh	109.20	119.59	139.01
Dried	99.25	80.54	231.53
Edible fats:			
Lard	108.31	124.91	127.88
Lard substitute	16.12	47.90	19.61
Margarin	20.95	81.45	67.24
Vegetable fats	191.31	143.42	145.64
Refined oleo fats.....	(c)	(c)	(c)

(a) Does not include lard, poultry, or game.

(b) Not separately stated prior to 1921.

(c) Net imports of 1,846,768 pounds, compared to a net export for January, 1910-1914, of 145,376 pounds.

Meat Production and Consumption, 1907-1921

Annual Tables by Bureau of Animal Industry Show Decline in Slaughter of Cattle and Calves in 1921 and Increase in Sheep and Hogs

There has been a considerable falling off in meat production in the United States since the war record of 1918, when about 17½ billion pounds of dressed meats, excluding lard, are estimated to have been marketed, of which 2½ billion pounds were exported. Economic conditions, at first favorable to producers and later very unfavorable, have since then, however, operated to cause a production, of upwards of 16 billion pounds each year up to and including 1921, but the exports last year had fallen to 820,000,000 pounds, or only one-third as large as those of 1918.

These and other facts are brought out in a series of tables compiled by the Bureau of Animal Industry, United States Department of Agriculture, showing the annual status of the meat situation for the calendar years 1907 to 1921, inclusive. Copies of the tables may be had on application to the bureau. The data for each year include: (1) The total slaughter which is divided into federally inspected and non-federally inspected; (2) the exports and imports; and (3) the consumption, total, and per capita, of each kind of meat and of all meats combined. The same information is given for lard separately from pork. Some of the points indicated by the tables are as follows:

Heavy Decline in Beef Since War

The great war effort of beef growers in 1918 resulted in the marketing that year of 15,750,400 animals, which yielded about 7½ billion pounds of dressed beef. This number has never been approached before or since. In three years the cattle slaughtering have fallen to 12,271,280 with an accompanying decline of over a billion pounds in beef production. Since 1910 the consumption of beef per head of the population in the United States is shown to have decreased a fraction over 20 pounds.

The exports of beef products fell from 728,000,000 pounds in 1918 to only 52,000,000 pounds in 1921. A large reduction in export shipments was to be expected, however, as the United States for several years before the World War was not a beef-exporting country. South America and Australasia have become great sources of cheap beef and mutton, and naturally dominate the foreign trade in those commodities.

Falling prices for live stock continued in 1921, so that farmers generally faced a very difficult financial situation. Low values were accentuated by uneven marketing, attributed to forced liquidation on the part of many owners.

Veal Gains Halted in 1920

Perhaps the most outstanding feature of the domestic meat situation in recent years has been the increase in the production and consumption of veal. The number of calves annually slaughtered increased steadily from 1915 to 1919, and calves marketed in that year almost doubled the number in 1914 and 1915. The upward trend was halted, however, in 1920, and veal production has fallen back somewhat in the last two years.

Lamb Consumption on Increase

The table showing sheep and lamb slaughter is marked by considerable irregularity. The slaughter was greatest from 1911 to 1914, after which it declined for three years, then increased for two years, declined again in 1920, and last year rose sharply to the highest total in six years.

Exports and imports of mutton and lamb have been almost negligible until 1920, when New Zealand frozen lamb carcasses were imported in large quantities, making an epoch in the trade. The total weight imported during the year was 101,000,000 pounds, but it failed to find a ready market, and nearly one-half of it was re-exported. The exports of domestic mutton in 1921 for the first time began to show some importance, being 20,000,000 pounds, or four times as large as in any previous year.

Consumption of mutton and lamb in the United States is only about six pounds per person per annum and is very small compared to beef and pork. It is smaller even than veal, of which about eight pounds per person is consumed.

Lard Exports Largest on Record

Pork production in 1920 and 1921 fell considerably below the high record made in 1919 when marketings were unusually large due to a great extent to the high prices prevailing during that year, including the highest ever paid for live hogs. Nevertheless, the home consumption of pork was slightly greater in 1920 and 1921 because of the heavy decrease in exports. The record exports of bacon and hams in 1919 have in two years been reduced almost two-thirds, the totals for these two items in round figures being 1,787,000,000 pounds sent abroad in 1919, 822,000,000 pounds in 1920, and 648,000,000 pounds in 1921.

The one bright spot in the foreign trade situation in 1921, as related to meat products, was the exports of lard, which were the largest on record. More lard was exported in 1921 than all meats combined. The total shipments amounted to 893,000,000 pounds, a substantial increase over recent years and an increase of 55 per cent over the pre-war year 1913. A factor in this result was the resumption of heavy trading with Germany, which, next to the United Kingdom, is the largest foreign consumer of our lard.

All Meats Combined Show Decrease

The highest recorded production of all dressed meats combined occurred in 1918, when approximately 17½ billion pounds (excluding lard) was prepared for home consumption and export. The production has declined each year since at the rate of about three-fourths of a billion pounds a year. The pronounced falling off in stocker and feeder shipments during 1921 indicates a further restriction of domestic supplies in the immediate future, despite the plentifulness and cheapness of corn. The following table (revised to January 1, 1922) shows the estimated annual consumption of each kind of meat per head of the population for the last five years:

Class	1917	1918	1919	1920	1921
	lbs.	lbs.	lbs.	lbs.	lbs.
Beef	62.0	64.7	57.2	61.1	57.7
Veal	6.5	7.6	8.2	8.9	8.0
Mutton and lamb	4.7	4.7	5.8	5.0	6.3
Goat meat	0.2	0.1	0.1	0.1	....
Pork (excl. lard)	58.4	69.8	67.1	68.9	72.8
Total meat	131.8	146.9	138.4	144.0	144.8
Lard	11.7	14.1	12.4	13.1	11.3
Total meat and lard	143.5	161.0	150.8	157.1	156.1

Must Not Discriminate on Quantity Discounts

A decision of interest to food manufacturers has been issued by the Federal Trade Commission directing the Mennen Company of Newark, N. J., a manufacturer of talcum powder and shaving cream, to cease and desist from discriminating in net selling prices, by any method or device, between purchasers of the same grade, quality, and quantity of commodities upon the basis of a classification of its customers as jobbers, wholesalers or retailers, or any similar classification which relates to the customers' form of organization or business methods.

The order provides, however, that nothing contained in it shall prevent discrimination in prices between purchasers of commodities on account of differences in grade, quantity or quality, or that makes only due allowance for differences in the cost of sale or transportation, or that is a discrimination in price in the same or different communities made in good faith to meet competition and not in restraint of trade.

This is the first application of section 2 of the Clayton Act to a price discrimination made by a seller between two classes of customers each buying the same quantity of the same commodity. It puts a co-operative buying agency or chain retail stores on equal terms with a jobber or wholesaler. It does not require giving a quantity discount but when a quantity discount is given, it must be given to all purchasers alike.

Anhydrous Butterfat

One of the many novel things at the recent National Dairy Show in St. Paul was anhydrous butterfat. It is now prepared on a commercial scale by the California Central Creameries, and is used in conjunction with skimmed milk powder. The fat has been freed completely of all milk solids and water, and when melted is as clear as olive oil. In this state, it, of course, has far better keeping qualities than in the form of butter, sterilized cream or whole milk powder.

There are many ways in which this product will find good use. Milk reconstituted from the powder and fat is a very tasty article, having only a slight milk-powder flavor. Cream can be reconstituted and then churned into fresh butter. The greatest advantage may be enjoyed by the milk chocolate people, for by simply mixing chocolate, milk powder and butterfat in the proper proportions, a product of much better keeping qualities is said to be obtained than with any other combination of raw materials.

Canned Grapefruit Popular

The J. K. Armsby Company, selling representative of the Spanish-American Fruit Company, operator of several canning plants in Porto Rico, reports that it has sold the entire 1921-22 pack of canned grapefruit hearts, of the Spanish-American Fruit Company.

Canned grapefruit hearts have found much favor with consumers.

Salted Almonds Introduced in California Market

Canned salted almonds have been introduced on the California market by the California Almond Packers at Stockton. They are put up in quarter-pound vacuum tins and warranted to keep indefinitely. H. Jevne Company is the distributor for southern California.

John P. Street Becomes Association Secretary

John Phillips Street, who was until March 1, director of inspection in the Indiana District of the National Canners' Association, Washington, D. C., has been appointed secretary of the New York State Canners' Association, Rochester, N. Y.

Mr. Street is 53 years of age and was educated at the Farnum Preparatory School and State Model School. In 1889 he was graduated from Rutgers College with the degree of B.S., receiving his M.S. from the same institution following his graduate work in chemistry. From 1889 to 1905 he was an assistant chemist of the New Jersey Agricultural Experiment Station, becoming chemist of the station in 1905. In 1907 he was appointed chemist in charge of the analytical laboratory of the Connecticut Experiment Station, and in 1913 was appointed State Chemist of Connecticut.

Since 1889 he has been prominent as a member of the Association of Official Agricultural Chemists, serving as referee on nitrogen, flavoring extracts, vinegar, canned vegetables, ketchup, etc. In 1906 he was elected president of this association. He was also a member of the committee to revise the association's methods of analysis and in 1913 was appointed one of its representatives on the Joint Committee on Food Definitions and Standards, devoting special attention to standards for diabetic foods, spices, bakery products and drugs. Mr. Street is one of the leading authorities on diabetic foods and is referee of this branch for the American Medical Association. He is connected in an editorial capacity with the "Modern Hospital."

Became Major in Sanitary Corps

During the war, Mr. Street's abilities were directed to the army, where he was commissioned a captain in the Sanitary Corps, Nov., 1917. He was placed in charge of nutritional survey parties in Camps Wadsworth, Green, Sevier, Jackson, Hancock, Johnston, Greenleaf and others and March 30, 1918, received his commission as major in the Sanitary Corps. As Major Street he was placed in charge of the medical camp at Camp Greenleaf, Georgia, where he organized the Greenleaf School of Nutrition, and as head instructor trained officers for nutritional work in the army. In June, 1918, he was sent to England, serving as assistant in the office of the Chief Surgeon, London, and nutritional adviser of the American rest camps at Winchester, Romsey and Southampton. In October of the same year he was appointed nutrition officer of Base Section, No. 4, Le Havre, France, which included the western part of France from Dunkerque to Rouen and Le Havre.

At the time of the armistice Major Street had received orders to join combat troops but this caused a change in army plans and he was transferred to the Central Medical Laboratory at Dijon for a short time. His service in France was completed as nutrition officer of base section No. 2, Bordeaux. He returned to the United States May 31, 1919. During his final four months at Bordeaux he was a member of the Transport Inspection Board and was in charge of rationing of troops on transports from that port. He also inspected several Italian transports which cleared from Marseilles.

Mr. Street is a member of the American Chemical Society; Association of Official Agricultural Chemists; American Public Health Association; Association of Ameri-

can Food, Dairy and Drug Officials; Association of New England Food Executives; National Consumers' League; and secretary of the New Haven Medical Association, National Institute of Social Sciences, New Haven Civic Federation, Phi Beta Kappa and Delta Upsilon fraternities.

Mr. Street is the author of "The Composition of Certain Patent and Proprietary Medicines," and has presented about 150 papers and reports on foods, drugs, fertilizers, cattle feeds and analytical methods. He was one of the originators of the Ulsch-Street method for determining nitric nitrogen, and the alkaline permanganate method for determining availability of organic nitrogen.

E. G. Rippel Retires from Active Business

E. G. Rippel, sales manager, Buffalo Foundry & Machine Company, Buffalo, N. Y., has retired from the company, with which he had been actively connected for the past 21 years, first as one of the organizers of the Buffalo Foundry Company and later in his connection with the present company. The extensive exhibits of the Buffalo Foundry & Machine Company, which Mr. Rippel arranged at the National chemical and dairy shows brought him into contact with many men prominent in the chemical industry of the country. He has been succeeded as sales manager by C. W. Pearson, assistant treasurer of the Buffalo Foundry & Machine Company.

Desire Location as Plant Chemists

Within the next two months twenty-five men will graduate from the School of Agriculture of the Pennsylvania State College in the general field of biological chemistry. These men have specialized in biology, foods and dairy chemistry under Professor R. Adams Dutcher and are at present desirous of getting in touch in manufacturers or laboratories with a view to securing locations leading to positions as research chemists, control chemists, managers or superintendents. All of these men have had a thorough training in theoretical chemistry, including a fair view of physical chemistry, and all are thoroughly familiar with analytical chemistry. All interested should communicate with Professor R. Adams Dutcher, Pennsylvania State College, State College, Pa.

To Enter California Field

Plans for the erection of a cannery at Fresno, Cal., were announced recently by General W. H. Sears of the Sears & Nichols Cannery Company, of Chillicothe, O., who has been inspecting Fresno sites. The company, which operates 18 canneries in Eastern States, will locate three new canneries in California, one at Fresno, one in the Sacramento Valley and one in the Santa Clara Valley, Mr. Sears announced.

Fruit Officials Re-elected

All members of the board of directors of the Fruit Growers of California, with two additional ones, were re-elected at the annual meeting of the Fruit Growers of California at San Jose, Cal., recently. The directors elected were: R. P. Van Orden, Mountain View; I. O. Rhodes, Morgan Hill; H. N. Schroeder, Los Altos; W. E. Moore, Berryessa; E. K. Glendenning, Campbell; R. V. Garrod, Saratoga; I. E. Walter, Mountain View; H. I. Coates, Saratoga; W. I. Dunlap, Hollister; W. A. Johnson, Hollister; James Milne, Morgan Hill; E. B. Sellers, Oakley.

New Sugar Export Corporation Organized

A new corporation to promote export trade in refined sugar was recently organized under the Webb Act, according to an announcement by Earl D. Babst, president, American Sugar Refining Company. The new organization is known as the Sugar Export Corporation and all refiners engaged in export have been invited to become members.

According to Earl D. Babst, president, American Sugar Refining Company, the export company starts with a contract with leading Cuban producers, on the same terms as were recently offered to all Cuban producers through their Sugar Finance Commission. The transaction is purely commercial, free of any artificial control.

The United States and Cuba possess the finest sugar industry in the world. With the support of Washington by giving permission, as proposed, to refine in bond, the industry, through the export corporation, will be in position to compete successfully in the markets of the world.

The directors of the new corporation included Earl D. Babst, James H. Post, Thomas A. Howell, W. H. Ogilvie, Robert I. Barr, R. M. Parker, Charles D. Bruyn. Officers are as follows: Earl D. Babst, chairman of the board; Joseph A. Ball, president; George E. Ogilvie, vice-president, and W. Edward Foster, treasurer.

Cuban Sugar Producers Oppose Tariff

A statement of facts in opposition to the 60 per cent increase in tariff on sugar from Cuba, provided for in the pending tariff bill, is contained in Bulletin No. 7, issued by the American Producers of Cuban Sugar, 123 Front Street, New York. It is pointed out that from 1917 to 1920 the United States Government offered inducements to Cuba to increase the sugar crop, so successfully that in 1919 to 1920 the crop was 4,000,000 tons. This crop, says the bulletin, was sold at 6½ cents and 7½ cents per pound, although the maximum price fixed for Louisiana was 17 cents per pound for plantation clarified and 18 cents per pound for clear granulated. It is further pointed out in the bulletin that although the Cuban planters are blamed for the advance in sugar in 1920, in the fall of 1919, the Cuban offer of sugar at 6½ cents per pound was refused, while Louisiana sugar was sold at 18 cents per pound.

The beet farmer does not participate in the increased duty to any extent, says the association. Prior to the war the farmer received about \$4 per ton for sugar beets; now factories are planning to pay \$4.50 to \$5 per ton. The bulletin states that as there is no abnormal supply of sugar in Cuba today, danger to domestic industry of too large Cuban supplies has passed. Cuba, it says, if free of duty could supply the American market with sugar at from 3 to 4 cents per pound.

Importance of Greek Imports of American Foodstuffs

The extent of the post-armistice growth of the Greek import trade in American food products may be judged from the fact that there is now direct American steamer service from New Orleans to Saloniki, reports Consul Leland B. Morris, of Saloniki. Practically all of Serbian Macedonia, Albania, and Thrace, besides Greek Macedonia, receive their supplies of sugar, rice, and flour by this route. It is believed that a very profitable and permanent trade connection has been established.

Good News of the Month

WHAT is the current trend in the business world? Pick up your morning paper and you find one headline after another devoted to failures, fires, famine; strikes, scandals, shootings; divorces, death and disaster of every description. But despite sensational headlines, life is still pretty safe and sound and wholesome for most of us.

So in the business world—it is the occasional failure that gets the headlines, while the vast majority of business concerns plod along more or less successfully, meeting their obligations, making a little something, and hoping for a better day.

That brighter times are not very far distant is the firm belief of The American Food Journal. Here are a few straws that help to indicate how the wind is blowing:

NET profit of \$2,182,495 for 1921 is reported by the General Baking Company.

* * *

THE Jewel Tea Company, Inc., reports an operating profit of \$383,143 for 1921, against a loss of \$1,709,935 in 1920.

* * *

NET profits from operations of \$1,392,896 is reported for 1921 by the Warner Sugar Refining Company.

* * *

THE Corn Products Refining Co., reported a net income for 1921, after all charges and Federal taxes were paid of \$6,326,358. After allowing for the regular dividends on the preferred stock this amounted to \$9.21 on the outstanding common stock.

* * *

TWO recent sales of New York Coffee and Sugar Exchange seats set a new high price mark. One seat was purchased by B. R. Cahn from Alfred Betancourt for \$4,410, the other transaction between F. T. Nutt, Jr. and Frederick T. Chandler was at \$4,405. The previous high record on a seat sale was \$4,300.

* * *

A CARGO of 32,440 bags of raw sugar was brought into Baltimore, March 17, for use of the

American Sugar Refining Company, at its new Baltimore plant. This is the first cargo of raw sugar for local refining that has been brought to Baltimore in 30 years.

* * *

BASED upon the present membership of the United States Grain Growers, Inc., more than 110,000,000 bushels of grain will be marketed annually by the recently incorporated subsidiary, the United States Grain Growers Sales Company, which will operate in the Chicago, Kansas City, Omaha, Indianapolis and Minneapolis markets. Membership in the United States Grain Growers is said by officials to have passed the 50,000 mark, about 2,000 farmers having recently been added to the membership, representing an increase of more than 4,000,000 bushels a week. The sales company will perform all the functions of grain firms in the terminal market.

* * *

THE estimated pack of California asparagus has been sold in one of the shortest campaigns on record and there is still a large unsatisfied demand. The present situation is in contrast

with last year when opening prices were 20c to 30c lower than those at the beginning of this week. With the packers out of the market there are reports of sales of contracts at high premiums.

* * *

THE Borden Company for 1921 reports gross sales of \$99,879,887, compared with \$120,293,573 in 1920. Net income, after charges and taxes, totaled \$2,924,746, equal, after preferred dividends, to \$11.44 a share on the \$21,368,100 common stock, comparing with net income of \$2,818,860, equal to \$10.95 a share on the same amount of stock in 1920. Bank loans which at the end of 1920 totaled \$12,750,000, were reduced to \$4,434,719 at the close of last year.

* * *

THE net income of the American Stores Company and affiliated companies, available for the common stock in 1921, was \$1,975,847, equal to \$13.89 a share on the 142,240 shares of common stock outstanding. This compares with \$12.79 a share earned in 1920. Gross sales for 1921 were \$86,068,176, as against \$103,059,303 in 1920.

Coffee Campaign to Go Right on

Joint Publicity Committee Says Work Has Been Successful and Will Continue It

The Joint Coffee Trade Publicity Committee of the United States has sent a letter to its subscribers in which the progress of the advertising work for the last three years is reported, and information concerning future advertising given. This letter, signed by Ross W. Weir, chairman of the committee, is in part as follows:

"The third year of the National Coffee Advertising Campaign will end April 1, 1922. By that time we shall have received from Brazil a total of \$630,000, and from United States coffee interests between \$150,000 and \$175,000; a grand total of about \$800,000.

"The results you know. No other beverage holds a place in public favor equal to that of coffee, and certainly no other truly staple article has shown as much increase in consumption. The best available statistics place this increase at 341,000,000 pounds a year, or 2,583,000 bags of 132 pounds each.

"Has coffee consumption reached the limit? Not by any means. Is the work of the coffee trade in the advertising campaign completed? Let us see.

"Until the beginning of this campaign, and during the entire history of coffee, there has been no organized effort at serious and thorough investigation of its qualities and effects; nor had anyone answered authoritatively the steadily increasing attacks by the substitute interests.

"Now the scientific investigation at the Massachusetts Institute of Technology is well under way. It is a part of the campaign. This is a big job and will take time. The facts it has established thus far are all favorable. They have put us in a position to refute the slanders against our product, and we already have made good use of them. This branch of our work, however, is only begun. The next step will be a campaign in the schools, where anti-coffee propaganda has been making such progress as to threaten the future development of our business. Your committee can think of no task more important and necessary than to teach our children the truth and to prevent them from leaving school with anti-coffee prejudices.

"The national advertising is still young, as campaigns go. Yet the publicity results and the increased consumption of 21 per cent constitute a record that has seldom, if ever, been attained for an important commodity in so short a time.

"This increase in coffee consumption has taken place during the time when the customs and habits of our population were very much disturbed and unsettled. Naturally during this period all kinds of soft drinks appeared on the market. Tea, chocolate, cocoa interests and especially the coffee substitute manufacturers, have all been unusually active during this time. Yet coffee has made its tremendous increase during this very period and is today the most widely used beverage in the country.

"Advertising results are cumulative. Our campaign today has the momentum of the three years past. This is a big asset. We shall realize the full benefits of a great deal of the advertising money spent in the past only if we continue to keep coffee before the public in the future.

"The Brazilian planters are well satisfied with the results of the campaign to date, and have realized the wisdom and importance of continuing without interruption. In renewing the tax law for another period of three years, and in doubling the tax on each bag, they have given the very best evidence of their desire to go right on."

Reports Indicate Success of Canned Foods Week

In answer to inquiries as to the success of National Canned Foods Week, March 1 to 8, the national committee reports that it may be considerable time before all parts of the country can be heard from. In the meantime, however, letters are being received giving results of the week as well as mentioning some of the outstanding features of the campaign.

Many of the letters indicate increased sales. It is already suggested that the event be repeated next year. Several urge that the time be changed, one correspondent suggesting September or October, and pointing out that then it would be pos-

sible to more appropriately use the slogan, "A Harvest Time for Housewives." Another believes Monday to Saturday inclusive, would be a better arrangement than beginning and ending the campaign in the middle of a week.

A gratifying feature of the campaign was that, while there were special demonstrations in some cities, smaller communities responded proportionately as well as larger. The campaign was not confined to any particular section of the country. The East, North, South and West were all heard from, even to the Pacific Coast and far away Hawaii.

Georgia Wholesale Grocers Meet

A. J. Long, of Macon, was elected president of the Georgia Wholesale Grocers' Association at the final session of the convention held at the Piedmont Hotel, March 29. He succeeds D. Y. Wallace, of Tifton, who was elected first vice president.

Other officers elected for the ensuing year are: A. McD. Wilson, second vice president; James A. Metcalf, secretary; George J. Callaway, of Albany; M. L. Mays, of Bainbridge; R. N. Gibson, of Rome; H. L. Singer, of Atlanta, and D. H. Brandon, of Dublin, executive committee.

A resolution was adopted as follows:

Opposing quantity rates on freight and urging the Interstate Commerce Commission to establish specific carload rates and specific rates for less than carload shipments.

Exports of Meats and Meat Products in 1921

The Institute of American Meat Packers has issued the following statement:

Although exports of meat and meat products during 1921, as compared with 1920, showed an increase of 3 per cent in quantity, the value decreased 36 per cent, according to official figures now available. Exports of all kinds of meat and meat products during 1921 aggregated 1,945,660,210 pounds, worth \$297,155,190, as compared with 1,883,389,053 pounds, worth \$462,500,064, during 1920. These figures indicate the tremendous declines which have occurred in wholesale meat prices during the past year.

One of the outstanding features of the year's export trade was the great increase in the amount of lard shipped to other countries. During 1921 exports of lard—\$92,883,645 pounds—were about 270,000,000 pounds, or 40 per cent heavier than during 1920, but the value decreased about

\$33,000,000 or 22 per cent. A comparison of 1921 and 1913 figures shows that lard exports in 1921 exceeded 1913 shipments by about 317,000 000 pounds.

Exports of hams and shoulders in 1921, as compared with 1920, increased about 24 per cent, or 47,000,000 pounds in quantity, but decreased more than 6 per cent, or \$3,000,000 in value.

Bacon exports showed decrease both in quantity and value. The quantity exported in 1921 was 415,299,522 pounds, which was 34 per cent, or 221,376,050 pounds less than in 1920, and the value in 1921 was about 56 per cent, or \$88,121,05 less than in the preceding year.

Exports of fresh beef during 1921, amounting to 10,412,790 pounds, were the lightest since 1913, when only about 7,000,000 pounds were exported.

	QUANTITY		VALUE	
	1921	1920	1921	1920
Beef, canned	6,077,248	24,059,711	1,276,147	5,951,629
Beef, fresh	10,412,790	89,649,148	1,804,521	17,564,887
Beef, pickled, etc.....	24,570,582	25,771,176	2,582,416	3,659,815
Oleo Oil	127,977,713	74,368,344	14,617,971	16,585,209
Bacon	415,299,522	636,678,440	68,175,003	156,398,769
Hams and Shoulders....	232,380,427	185,246,744	47,755,467	50,887,588
Lard, including neutral..	892,883,645	635,488,022	115,969,982	149,177,483
Pork, pickled	32,850,107	38,724,241	4,216,135	7,671,169
Lard compounds	48,206,583	32,051,448	5,548,931	7,218,845
Oleomargarine	3,329,049	16,557,821	672,327	4,567,174
Tallow	13,797,928	20,691,638	1,016,753	2,950,675
Pork, canned	1,150,082	1,803,066	344,795	752,745
Pork, fresh	56,083,263	38,305,278	9,336,527	9,090,492
Mutton, except canned..	7,515,438	3,575,409	1,254,981	758,526
Sausage, canned	2,556,091	7,158,291	874,502	2,344,684
Sausage, all other	6,352,131	10,509,090	2,116,242	4,187,574
Sausage Casings	31,521,187	25,238,187	6,243,992	5,860,935
Stearin from animal fats	32,696,424	17,512,987	3,264,280	3,487,578
All other meat products				
canned			5,008,300	6,315,843
All other			5,075,914	7,168,444
	1,945,660,210	1,883,389,053	297,155,190	462,500,064

57

The Grocer Performs a Double Service

In dealing with the manufacturer the retailer is the consumer's agent; he supplies the consumer's needs and guards the consumer's interests. Again, in dealing with the consumer, the retailer is the agent of the manufacturer for he interests the consumer in the manufacturer's product. The dealer's own profit depends upon his success in taking care of both responsibilities.

Progressive manufacturers help the dealer to interest the consumer by the use of advertising which creates a definite demand for certain goods. That is why H. J. Heinz Company advertises so continually and so extensively—to help the retailer in his double capacity of agent for both the producer and the consumer of Heinz Products. Thus the dealer can further help himself by displaying Heinz goods and advertising material.

H. J. Heinz Company
57 Varieties

E. PRITCHARD

Packer and Manufacturer
of the Finest

"EDDYS"

BRAND

Canned Food, Jellies, Preserves
Plum Pudding, Sauces, Table Delicacies
and

PRIDE OF THE FARM
TOMATO CATSUP

Bridgeton, New Jersey
and

331 Spring Street, New York, N. Y.

When the Question is Quality

IN the diet kitchens of our finest hospitals, in the domestic science classroom and the home as well, in fact wherever quality and purity are the first consideration, you will find

KNOX

SPARKLING
GELATINE

When combined with pure fresh fruit or fruit juices, there is no question of its dietetic value.

FREE Recipe Books

The Knox Books, "Dainty Desserts" and "Food Economy," contain hundreds of recipes for all kinds of meat dishes, fruit and vegetable salads, desserts, candies and invalid dishes. Send for them. They are free. Just enclose 4 cents to cover postage and mention your grocer's name.

Any domestic science teacher may have sufficient gelatine for her class if she will write on school stationery, stating quantity and when needed.

The Charles B. Knox Gelatine Co.

111 Knox Ave.

Johnstown, New York



Plain for general use. The original unflavored, unsweetened package.

The "Busy Housekeeper's" package. Contains Lemon Flavoring in separate envelope. No Lemons required.

Both packages contain the same Quality and Quantity of Sparkling Gelatine

Milk Organizations Increase Consumption by Advertising

The extensive advertising and publicity given to the consumption of milk, to increase its use, by such organizations as the Dairymen's League and Co-operative Association, Utica, N. Y., the National Dairy Council in Chicago, the New England Dairy and Food Council, Ohio Farmer's Co-operative Milk Company of Cleveland, Philadelphia Inter-State Dairy Council and other local organizations, is stated to have not only increased demand for dairy products but to have facilitated distribution and aided materially in stabilizing prices.

The Dairymen's League and Co-operative Association, which was organized in the New York territory in 1916, now collects from the dealer, payment for the milk shipped by about 68,000 of its members, which are located in six states, contributing to the milk supply of New York. It has expended as much as \$30,000 per month on newspaper advertising alone and maintains a nutrition bureau for work in schools and distributes bulletins, leaflets and booklets dealing with the use of milk products.

The Philadelphia Inter-State Dairy Council, supported by both dealers and producers, expended \$55,722.93 in educational advertising between January 1 and October 31, of last year. During this campaign for greater milk consumption experts conducted nutritional classes and weight surveys in the public schools. As a result of one month of this educational work a group of 436 children, which in the beginning averaged 13 pounds under weight, gained a total of 939 pounds. One of the results claimed for this campaign is an increase in milk receipts in Philadelphia in September, 1921, of more than 2,500,000 quarts over the consumption of September, 1920.

It is estimated by experts that milk consumption averages per day about one-half pint per capita. It is to increase the consumption that the numerous milk organizations continue to carry on their advertising and publicity work. Grain growers, cattle men and numerous other large organizations are preparing to increase the consumption of their products by co-operative publicity methods and educational work.

Strong British Demand for American Foods

British trade returns for 1921 reveal to a surprising degree the strength of American food products sales, according to a cablegram received by the Department of Commerce from Special Representative Dennis. The wheat market which had for six months shown a trend in favor of the buyer, Mr. Dennis states, now displays a tendency in favor of the seller. The principal bearish factor is the prospect of large shipments from the Southern Hemisphere. The new Argentine crop is reported of superior quality sound and heavy wheat, and further being sold on an attractive basis of full outturn drafts at 90 days' sight, makes a strong appeal to the British millers. The price of corn improves with that of wheat. Better feelings prevail, particularly in the forwarding business.

There has been a gratifying increase Mr. Dennis cables, in the value of business in the three principal cereal items (wheat, barley and corn) as over 1913. The value of wheat imports doubled, and that of barley tripled. Corn showed a gain of £1,500,000. The decline in oats was governed by the law of diminishing consumption, as the horse is displaced in urban centers by internal-combustion engines. American

sales of pork products to the United Kingdom show a considerable advance in bacon, ham and lard. This trade was valued at nearly £19,000,000 more in 1921 than in 1913. The vigorous growth of American food-stuffs trade in the British market in a year of severe business depression is worth attentive consideration. British purchases of American refined sugar during January were unusually heavy.

Recent Patents

The following patents of interest to readers of The American Food Journal recently were issued from the United States Patent Office. Copies thereof may be obtained from R. E. Burnham, patent and trade-mark attorney, Continental Trust Building, Washington, D. C., at the rate of 20 cents each. State number of patent and name of inventor when ordering.

1,404,338. Pop corn candy mixer. Addison Bishop, St. Louis.

1,404,539. Confection. Christian K. Nelson, Onawa, Iowa.

1,404,922. Process of maturing and bleaching flour. John C. Baker, Ridgefield Park, N. J., assignor to Wallace & Tiernan Company, Belleville, N. J.

1,405,055. Manufacture of butyric acid. Frank A. McDermott, Washington, D. C., and Ruth Glasgow, Pittsburgh, assignors to Fleischmann Company.

1,405,070. Condiment. Marion M. Osborn, Lone Free, N. Dak.

1,405,584. Apparatus for cooling lard, etc. Charles S. Hardy, San Diego, Cal.

1,405,726. Beater adjustment for almond-hullers. Archibald R. Stephen, Lodi, Cal.

1,406,170. Apparatus for making food products. Thomas Charlton, Chicago.

1,406,380. Process of and means for putting up powdered milk and other food products in a sterile atmosphere. Wilfred P. Heath, Chicago, and Robert M. Washburn, St. Paul.

1,406,381. Process of manufacturing powdered milk and other food products. Wilfrid P. Heath, Chicago, and Robert M. Washburn, St. Paul, Minn.

1,406,497. Macaroni-trimming machine. Frank I. Rutledge, Pittsburgh.

1,406,513. Preservation of meat. Georg Schnabel, Niederoderwitz, Saxony.

1,400,554. Process of clarifying fruit juices. Aage Gusmer, West End, N. J.

1,406,590. Minced sardines. John Tweeddale and Frederick B. McCrosky, Los Angeles.

1,402,923. Candy-cutter. Arthur E. Dempsey, Council Bluffs, Iowa.

1,403,072. Process of gathering and preserving fruit-juices. John W. Cheney, Pasadena, and Harry F. Cheney, Los Angeles, Cal.

1,403,108. Device for the straining and canning of milk. John Postma, Loleta, Cal.

1,403,122. Food compound. James A. Lawson, Chicago.

1,403,223. Process of preserving milk. Clarence L. Arnoldi, Manitowoc, Wis.

1,403,405. Process for the preparation of artificial-milk products. Hermanus T. Habbema, Amsterdam, Netherlands.

1,403,412. Process of making sorghum-sirup. Amy Hinton, Watts, Cal.

1,403,473. Flavoring extract and process of preparing the same. James B. Albach, St. Louis, Mo.

1,404,054. Manufacture of butter fat. Earle B. Phelps and Albert F. Stevenson, Ridgewood, and John C. Baker, Ridgefield Park, N. J., assignors to Albert W. Johnson, New York.

1,404,073. Noodle-cutting machine. Frank Turk, Casselman, Pa.

Sugar Consumption of United States in 1921

The United States consumed 10,548,451,000 pounds of sugar in 1921, or 28.4 per cent of the world production. This represents an increase of 8.4 per cent over the consumption in 1920 and is 25.9 per cent larger than the average consumption for the 10-year period ending 1920 (8,376,936,656 pounds). The per capita consumption in 1921 was the largest in the history of the country, amounting to 97.8 pounds, compared with 91.4 pounds in 1920, 85.3 pounds in 1913, and 58.8 pounds in 1900.

Sugar production in continental United States in 1921 was 2,532,246,160 pounds, an increase of 30.2 per cent over the 1911-1920 average (1,944,565,760 pounds). Domestic production supplied 24.1 per cent of the consumption in 1921, as compared with 17.4 per cent in 1920 and 23.7 per cent in 1919. Of the domestic production, cane sugar made up 352,204,160 pounds in 1921, an increase of 45 per cent over 1920, but 30 per cent less than the average for 1911-1920 (504,132,160 pounds). On the other hand, 2,180,042,000 pounds of beet sugar were produced, the largest output in history, and 51 per cent larger than the average for the 10-year period ending 1920 (1,440,433,600 pounds).

The noncontiguous territories of the United States supplied 2,132,926,730 pounds of sugar for consumption in this country in 1921, which is very near the average for 1911-1920 (2,099,446,651 pounds). The amount supplied by the territories in 1921 was 20.2 per cent of the American domestic consumption for that year, compared with 19.9 per cent in 1920.

Of the amount supplied by noncontiguous territories, 977,738,902 pounds came from Hawaii, 818,043,880 pounds from Porto Rico, and 337,143,948 pounds from the Philippine Islands.

Imports from foreign countries in 1921 were less than for the year 1920 but larger than the 1911-1920 average. Foreign imports supplied 55.7 per cent of the consumption in 1921, 62.7 per cent in 1920, and 52 per cent in 1919.

Food Exports Larger Than Pre-War Average

The total exports of food stuffs from the United States during January, 1922, although larger than the pre-war average, show a decline as compared with January, 1921. The outstanding features of the trade for the month are the considerable increases in shipment of corn and sugar. The large movement in corn was, in part, due to the Russian relief cargoes, and that in sugar to a heavy European demand, particularly by Great Britain.

Consumer Taught Merits of Honey

A general educational campaign designed to teach the public the merits of honey in general and incidentally their own product has been recently instituted by Hoffman Hauck, Inc., Woodhaven, New York. In the advertising which this firm is placing in the New York papers, the merits of the ancient food are gone into carefully, and their main appeal is along lines suggestive of new uses of the product or uses not as well-known as they ought to be. "Make Your Next Pot of Beans with Honey," is a typical suggestion and the advertising copy goes on to describe how much nicer they are with this ingredient.

Other suggestions refer to hot biscuits and honey, waffles, hot toast, pancakes, on fried sweet potatoes, and so on. A recipe book to be obtained at one's grocer is also featured in these ads.

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The American Food Journal

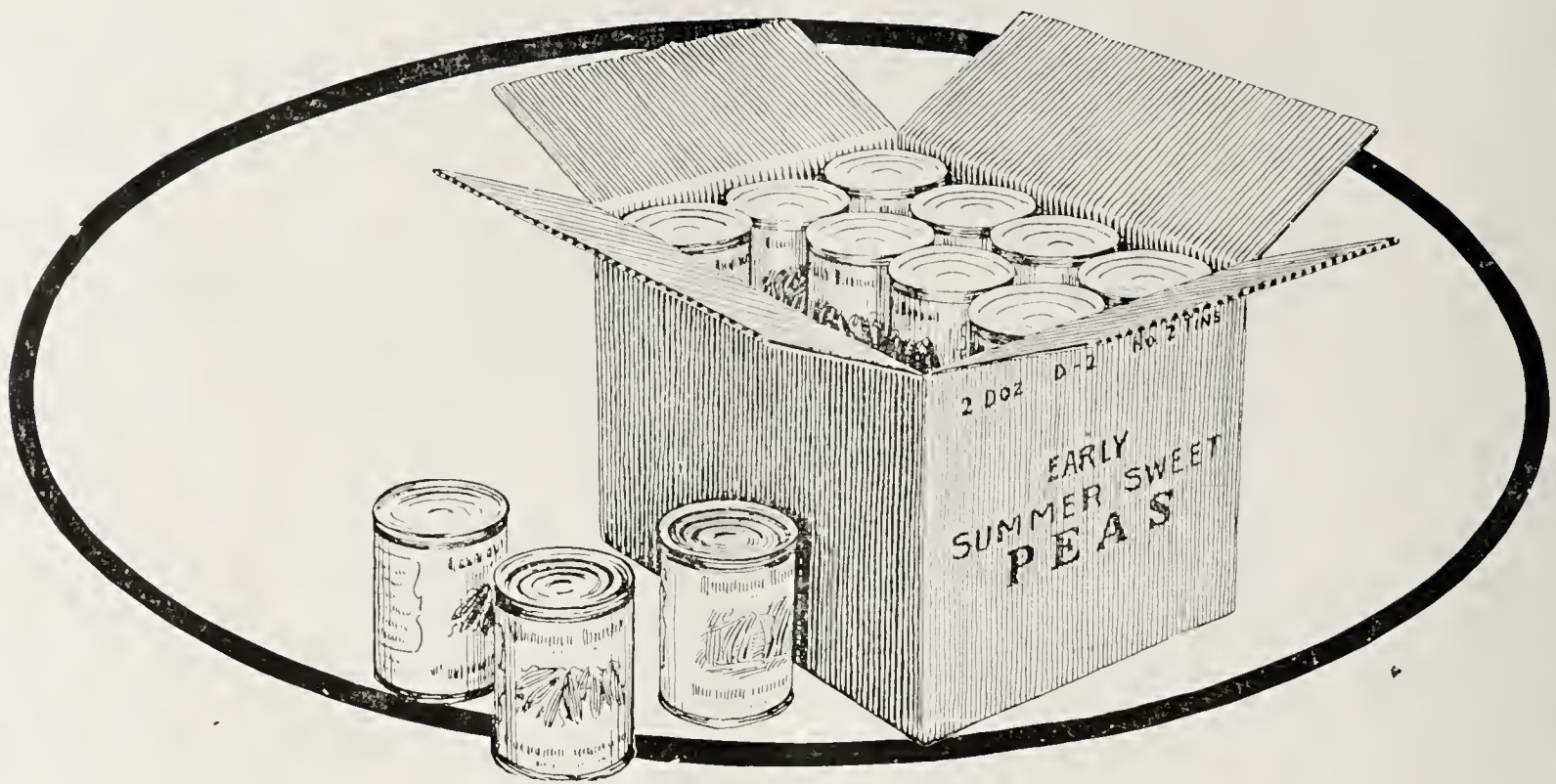
The National Magazine of the Food Trades



SAMUEL MUELLER, Macaroni Manufacturer. Elected President Food Institute of New Jersey

Articles in This Issue: Greater Recognition for the Dietitian, Food Flavors, Self-Rising Flour-What Is It? Many Other Features.

Single Copy, 25 Cents—Yearly Subscription, \$3.00



The Low-Cost Box that is Safest for Canned Goods

THAT'S what the U. S. Food Administration was looking for back in 1917. And they found it! On January 22, 1918, they adopted the *H. & D. Canned Goods Box* specifications as the standard for corrugated fibre boxes to carry canned goods to army camps and cantonments.

Then in the same month, the National Cannery Association published its circular No. 47, prescribing the same standard for canned goods boxes used by its members.

These regulations still stand. The Government and the Association were looking for exactly the same thing you are looking for now—the box that combines staunchness with economy—the greatest saving with the widest margin of safety.

H. & D. Standard Canned Goods boxes were made then, as they are today, with a 30 per cent excess of strength, above railroad requirements—their convenience is a boon to the Canner, yet they cost him less than any other box that can be safely trusted with his shipments.

Write for our canners' booklet, which describes and illustrates the economical packing of canned goods. We shall be glad to send you a copy with our compliments.

THE HINDE & DAUCH PAPER CO.

825 Water Street, Sandusky, Ohio

Canadian Address: Toronto, King Street, Subway and Hanna Avenue

Volume XVII

The American Food Journal

Number 5

The National Magazine of the Food Trades

Established 1906

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This figure covers only the three meals served daily by over 600,000 readers of Modern Priscilla — women who give their preference to food products bearing the Priscilla Seal.

But what about your other customers — those unfamiliar with the Priscilla Proving Plant and the meaning of its Seal?

To be able to tell them that a product has been tested and approved in the laboratories of the Massachusetts Institute of Technology under the supervision of such an authority as Dr. A. G. Woodman will convince them of its purity and wholesomeness —

But to tell them that it has given unfailing satisfaction in daily use in a typical American home is to make them want to try it themselves, for every woman appreciates the value of the Home Test plus the Laboratory Test.

The Priscilla Proving Plant is the only testing service which combines the Home with the Laboratory—the Priscilla Seal the only one which guarantees chemical purity, and satisfaction in actual use.

The Priscilla Proving Plant and the Priscilla Seal can help you in selling branded food products to American housewives. Write to our Boston office for complete information about our unusual service.

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New York

BOSTON

Chicago

*PRISCILLA (*fem. noun*)
one who delights in her
home; good housekeeper.



The American Food Journal

The National Magazine of the Food Trades

Established 1906

Vol. XVII

MAY, 1922

No. 5

Greater Recognition for the Dietitian

Growing Responsibility of Her Work in the Food Field of Importance to the Food Manufacturer

By WINIFRED STUART GIBBS

THE hospital dietitian is winning through to medical and popular recognition. Time was when she was looked upon as a trustworthy machine, one who would obey orders and ask no questions. That time is passing, and during its passing every specialist in dietetics is rejoicing over the fact that so many hospitals have established departments of dietotherapy with chief dietitians in charge. Today, in most large hospitals the chief dietitian is able to turn over to an assistant many routine matters, and to devote herself to that which should be her chief concern, namely consultation with physician and nurse regarding diets for special cases and diseases. In at least one of these hospitals the chief dietitian carries the title Superintendent of Dietary.

Naturally the dietitian does not diagnose, but if she knows her business she is prepared to work shoulder to shoulder with physician and nurse, conferring as to prescribed diets, suggesting changes, as the disease progresses or diminishes and recording all symptoms that are in any way related to metabolic processes.

Among the hospitals featuring dietotherapy are the Massachusetts General and Peter Bent Brigham Hospitals in Boston, Mt. Sinai Hospital in New York City, Lakeside Hospital in Cleveland, Hahnemann Hospital in Rochester, N. Y., University Hospital in Iowa City, where Dr. Ruth Wheeler, the dietitian is full professor in the Medical College, the Sanitarium Hospital at Battle Creek, Mich., the Mayo Brothers' Hospital in Rochester, Minn., and the Cottage Hospital in Santa Barbara, Calif.

The dietotherapy work in this latter institution might well be taken as typical. Here Miss Florence H. Smith is chief dietitian, and she tells an interesting story of the organization and development of her department. At the Cottage Hospital there are two dietary

EDITOR'S NOTE.—One of the developments in the field of dietotherapy, of which food manufacturers should take notice, is the increasing recognition given to hospital dietitians. As Miss Gibbs, the author of this article, states: "Time was when the dietitian was looked upon as a trustworthy machine." But that day is passing and the dietitian in many hospitals is now consulted by physicians in cases of metabolism. Miss Gibbs is herself a dietitian of wide experience, having served for many years as teacher of dietetics at Teachers' College, Columbia University, New York, and for ten years directed a home economics department for the New York Association for Improving the Condition of the Poor.

units that of the main hospital and that of the Potter Metabolic Clinic.

Diet Work in Main Hospital

This is in charge of an assistant dietitian who carries out the orders of the physician and chief dietitian, reporting to the latter daily.

After the physicians and the chief dietitian have together worked out a basic diet for the main hospital, copies of this are made and the menus for all meals are planned by the dietitian, using the basic or normal diet as a starting point.

This normal diet, as in all hospitals, takes into consideration the caloric content, the nitrogen balance, the bulk, the vitamins and the mineral content that go to make up a balanced diet for those who are "at bed rest."

An accurate system of order slips, made in triplicate, so as to provide a copy for the patient insures against

errors, since the patient can report any inadvertent clerical or other mistake.

This admission of the patient into the dietary team work is an outstanding feature of the newer hospital dietetics. At the Cottage Hospital the chief dietitian visits the patients daily, teaching them the curative value of individual diets and enlisting their intelligent cooperation. Any one who has been a hospital patient and has felt that his trays bore but slight relation to his own particular needs will quickly see the advantages of such a feature. It is almost a truism that there is a close relation between the mind and the digestive system, and a meal that interests has a good chance of nourishing the patient.

The Metabolic Clinic

It is in the Metabolic Clinic, however, that we find the most striking dietary feature, since it is here that the chief dietitian who supervises the department in person, is doing original work in the development of dietotherapy.

The clinic is in a separate wing of the hospital, the beds being reserved for patients suffering from diabetes, Bright's disease, undernourishment, gout, high blood pressure and other diseases requiring special diet prescriptions.

As in the main hospital, patients are asked to cooperate in making the work a success. The diet forms have been carefully worked out and show the estimated food value of each prescription, and the distribution of foods by meals. From these slips the dietitian makes her food summary for the physician's chart. Often the patient is taught to make these calculations himself; when this is possible the results are very gratifying. Such educational work as this shows a long step in advance over the days when a patient was experimen-

to eat blindly whatever was served to him.

Education of Dietitians for Hospital Work

Those who have followed the development of home economics as a profession will recall that the earlier graduates had a restricted field. They were expected to "teach" or do "institution work." Those who were fortunate enough to secure "teaching positions" have been the first to see their specialty come into its own. From "cooking" and "sewing" classes, as listed in those first courses of study, have grown whole departments of home and social economics, preparing students for important posts in the educational world.

The institutional worker, particularly the hospital dietitian, has had to wait longer for full recognition. One reason for this is that institution boards of management have centered authority in the superintendent; another is that home economics pioneers have been obliged to proceed slowly, struggling first of all for professional recognition, as a group, before they were fortified by sufficient prestige to enable them to carry the banner over into the institutional field.

Like all sound movements, however, the growth has been sure. The formation of the American Dietetic Association marked a definite stage in group consciousness and in the creation of standards.

Members of this association have conferred with physicians, nurses and educators and have reached the following conclusions:

"There is a field for the nurses' work, a field for the medical officer's and one for the dietitian. They should be sufficiently separated so that there is no possibility of misunderstanding, but they should be so co-ordinated that the patient receives the best possible as-

*Journal of Home Economics, Feb., 1922, page 72.

sistance in the struggle back to health." *

As a result, colleges such as the Universities of Iowa, Illinois, Wisconsin, Teachers College (Columbia University) and others are offering courses to fit home economics students for this most important field. The officers of these colleges realize that if the dietitian is to be recognized as having a rank coordinate with that of the superintendent of nurses and the superintendent of the hospital, she must be trained in the sciences and in her own field. She must know what portions of the work she may successfully develop, which are cooperative, and, most important of all, perhaps, which types she should not attempt.

Among the educators who have helped in developing these plans are Dr. Ruth Wheeler, Professor Abby Marlatt, Dr. Amy Daniels, Dr. Katharine Blunt, Professor Mabel Little and Professor Helen Parsons.

Teaching Dietetics to Student Nurses

Assured of well trained dietitians and medical cooperation leaders of this movement are turning their attention to the instruction of student nurses in dietetics.

Early courses in nurses' training schools made but scant provision for this, beyond a short course in invalid cookery to which the nurses often went in the evening, after a grilling day on the wards. Then more extended courses began to make their appearance, until today the training schools are fully aware of the importance of training nurses in at least the principles of dietetics.

Gratifying indeed is the fact that the education committee of League of Nursing Education is seeking cooperation with the American Dietetic Association for the purpose of working out adequate courses for student nurses.

Another Function of the Dietitian

All honor to the broad-minded nurses

who are frankly admitting that they need the help of the dietitian. Gone are the days when the nurse considered her own word as law, under the physician. She has kept up with her own procession, even as the dietitians are striving to keep up with theirs, and is saying to the dietitian:

"We need you to instruct us in dietetics, even as you need our help in medical matters; let us work together for the good of our patients."

So the teaching of student nurses has come to be an important part of the hospital dietitian's duties. In leading hospitals these courses aim:

1. Apply the principles of nutrition and cookery to dietetic treatment of nutritional disorders.
2. To teach the student nurses how to fill doctors dietary prescriptions, and to make attractive menus and palatable meals from these.
3. To teach the students how to gain the cooperation of the patients in dietary matters.
4. To study the charting of diets on history sheets.

The Future

To sum up, the dietitian is earning her right to admission into the field of modern medicine. The American Dietetic Association is engaged on the compilation of a list of hospitals featuring dietotherapy; leading colleges are bending every effort toward adequate preparation of dietitians; the medical and nursing professions are holding out the hands of fellowship; the "G. P.," to use the nurse's affectionate term for her grateful patients, is welcoming the visit of the dietitian to the bedside; let her but continue on her earnest quest for knowledge, and the dietitian will find herself acknowledged as a member of the great triumvirate—Doctor, Nurse, Food Specialist.

Report on Fat Analysis of Milk Powder

A REPORT of investigation and comparative analysis carried on over two years by G. C. Supplee and B. Bellis of the research laboratory, Dry Milk Company, New York, on the fat analysis of milk powder, has been published by the company.

During the investigational and control work connected with desiccated milk, different methods for determining the butter fat content of the product were compared. The experiments carried out over a two-year period were on milk dried by the Just double-roller process. The great majority of results were obtained with the Mojonier apparatus, a practical adaptation of the chemical principles of the Roesse-Gottlieb method for routine factory analysis.

Only Slight Variation in Results with Roesse-Gottlieb Method

In summarizing the results of this investigation the authors state that the normal variations in results from the same sample of milk powder analyzed by the Roesse-Gottlieb method was not over 0.15 per cent when results were expressed on the original powder basis. It is also stated that there was no positive evidence of less fat being extracted from old milk powder than fresh powder, when both samples were expressed on the moisture-free basis. On the original powder basis there was an evident decrease in fat content of old powders, due to the fact that they may have absorbed moisture. The simple ether extraction method gave results from the double-roller process powder which were on an average about

0.25 per cent lower than the Roesse-Gottlieb method. Duplicate results from the former method were also subject to wider variations than those from the latter method.

On the basis of results obtained, the authors state that the Redmond modification of the Babcock centrifugal method is very unreliable. They point out that the modified Roesse-Gottlieb procedure, from which extraction is made from an acid medium instead of an alkaline medium, gave higher results in the majority of cases than did the regular extraction from an alkaline medium. The full significance of these higher results could not be stated without further investigation as to the variability of numerous results from the same sample of powder.

Self-Rising Flour—What Is It?

Experiments Conducted by National Cereal Products Laboratory Show Results Obtained From Various Grades

By BENJAMIN R. JACOBS

Director, National Cereal Products Laboratory, Washington, D. C.

FLOUR as known in the home is of two general classes and many grades. The class is determined by the kind or type of wheat from which the flour is made. The grade of a flour is determined by its freedom of offal material (the outer coating of the wheat) as removed by milling.

The process of milling wheat into flour and offal is one of gradual reduction and separation. The endosperm, or flour producing portion of the wheat, being heavier than the offal and of a different texture may be easily separated by various methods of applying centrifugal force or air currents, so that flour as ordinarily used is a product from which practically all of the offal has been removed.

Wheat consists of about 85 per cent endosperm and 15 per cent offal. The miller, however, is not able to extract much more than from 70 to 75 per cent of endosperm, or flour, without also extracting, in an inseparable form, unduly large amounts of offal. The above extraction is generally known as 100 per cent extraction or a "straight" grade of flour. When this "straight" is separated into the various grades the poorer portions are called "clears" and the better portions are called "patents."

Efforts have been made for many years to define grades of flour, but these have generally been unsuccessful as they have taken into consideration the types of wheat from which the flours were made. The newer conception defining grades in flours is to determine the amount of offal present regardless of the type of wheat from which the flour is milled. The writer has been engaged in this work for the past six years and has found a means of not only determining the grade of a flour, or its freedom from offal, but the means of determining the amount of flour that remains unextracted in the offal.¹

The claim is often made that lower grades of flour have a higher food value than the higher grades made from the same wheat. This increase in food value is but slight. The poorer keeping qualities of the lower grades of flour, together with their disagreeable taste and unattractive appearance cannot be considered to compensate for this very slight benefit derived from a higher food value.

EDITOR'S NOTE.—One of the engaging problems of the moment in the food field is that of regulations of the manufacture and sale of self-rising flour. Unfortunately the controversy has assumed something of a trade war in which the scientific principles involved have been somewhat obscured. However, a series of serious experiments have been made as one contribution to the subject by the National Cereal Products Laboratory of Washington, whose director is Benjamin R. Jacobs, for many years connected with the United States Bureau of Chemistry, where he specialized in investigations of flour. Dr. Jacobs' conclusions regarding his experiments with self rising flour are contained in the accompanying article contributed to *The American Food Journal*, this article covering much the same subject matter as was presented by Dr. Jacobs in a technical paper read before the American Chemical Society at its spring meeting in Birmingham, Ala., early in April.

Hard Wheat Flour Best for Bread

The flour that is best adapted to bread baking is made from hard wheat, which grows in a restricted central and northwestern area of this country, and that best adapted for pastries is made from soft wheat grown in the more humid and southern areas. The bread flours are characterized by a higher content of gluten and phosphorus, and usually contain from 25 to 40 per cent more of these substances than the same grades of the soft wheat or pastry flours.

Gluten is the most important single constituent of flour. It is not found in the flour of other cereals such as corn, oats or barley although it is found in rye to a limited extent. The principal reason why wheat and rye flour are used for bread making purposes is that these two cereals contain gluten. It is the substance which gives to dough its power to retain gas when leavened with either yeast or baking powders. It also gives elasticity or ability to expand and become properly aerated.

Figure 1, showing two loaves of bread marked "A" and "B" illustrate graphically differences in gluten content of flour. The loaf marked "A" is made of a high-grade hard-wheat flour, while the loaf marked "B" is made of

a high-grade soft-wheat flour, both flours being milled to the same degree of purity or freedom from offal. It will be noted that there is considerable difference in the volume between these two loaves of bread. This difference is due entirely to the difference in the quality of gluten. Loaf "A" contained 12 per cent of gluten and loaf "B" contained 9 per cent of gluten.

The degree to which bread is assimilated is somewhat dependent upon the amount of aeration, and as these two loaves were made of identical weights of flour (340 gms. each), in the same manner, and at the same time, it is evident that loaf "B," made from soft-wheat flour, is less aerated, or in other words, more compact, and therefore, not so easily assimilated.

Definition of Self-Rising Flour

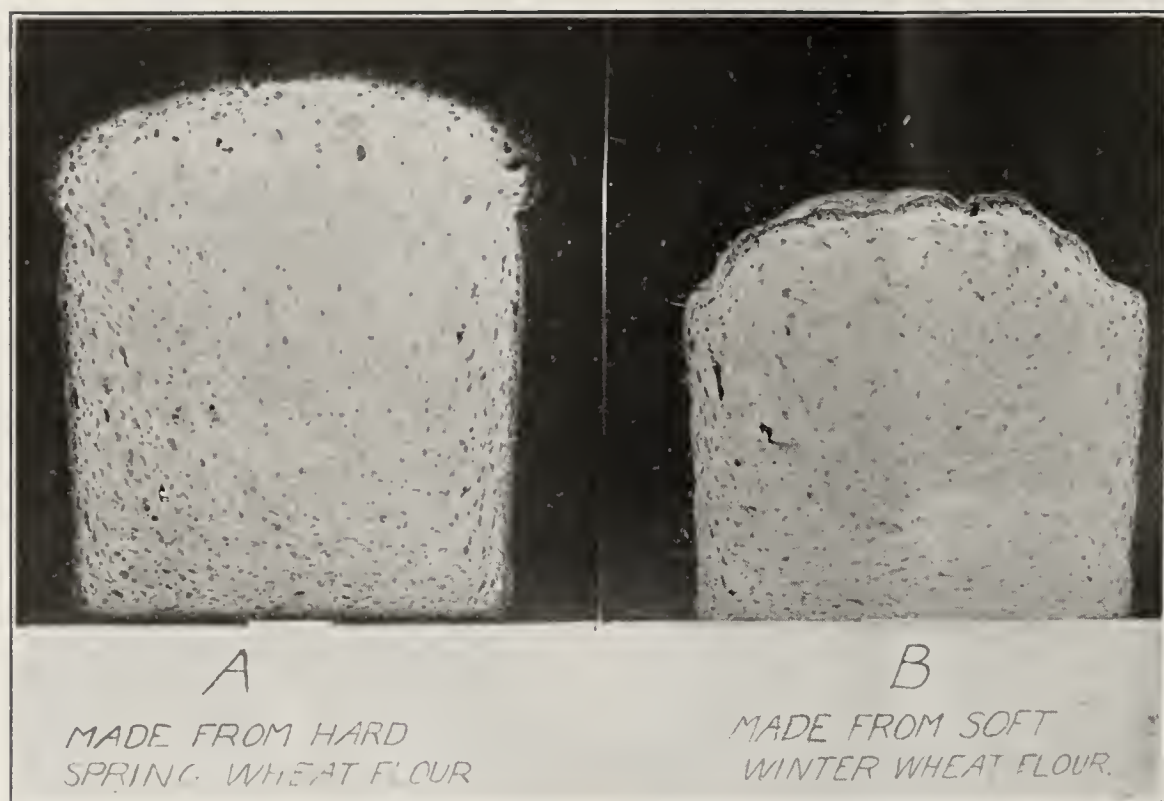
Self-rising flour may be defined as a flour of almost any grade, to which leavening ingredients and salt are added. The leavening ingredients added are usually calcium-acid-phosphate, as the acid-reacting ingredient and bicarbonate soda, as the alkali reacting ingredient. The mixture is such that all that is necessary is to add either water or milk in the proper amounts to obtain a dough or batter ready for baking.

Our laboratories have recently examined 37 samples of self-rising flour purchased on the market in the South. The examination of the samples consisted first, in determining the class and grade of flour used, second, in determining the amount and character of the leavening ingredients, and third, in determining their baking qualities. In determining the class and grade, it was found that practically all these flours were made from soft-wheat. Many of them contained less than 9 per cent of gluten, and only one contained as high as 11 per cent of gluten; showing all to be deficient in this most important substance. More than 25 per cent of the samples examined were of inferior grade, that is they contained quantities of offal material, in excess of those usually found in flours of what are known as "straight" grades.

Chemical Examination

The chemical analysis of these samples showed that in many cases the amount of calcium-acid-phosphate added was in excess of that required for the proper leavening of the product. Excesses of sodium bicarbonate were found in some instances, while in others deficiencies of this substance were

¹"Laboratory Control of Wheat Flour Milling." By B. R. Jacobs and O. S. Rask. *Journal of Industrial and Engineering Chemistry*. Volume 12, Number 9, page 899.



Differences in gluten content of flour illustrated graphically by loaves of bread baked with both kinds

found. In most cases, however, there was no relation between the amount of acid-reacting leavening ingredients and the baking soda, while deficiencies in the amount of soda were indicated by very low quantities of carbon dioxide.

These excesses of leavening ingredients found in these products show a lack of control in the manufacture of them. It would also indicate what has been learned from other sources, that when this product remains on the shelves of the grocers for long periods of time they are reshipped to the millers, where an extra charge of phosphate and soda is added. In some samples examined 60 to 80 per cent excess phosphate were found. But, most noticeable, is the fact that in some of these samples the amount of carbon dioxide was approximately one-half of that required to properly "raise" the baked product (usually biscuits).

The referee Board of Consulting Scientific Experts in its report on alum² states that there is no evidence to indicate that the occasional use of bread, biscuits or cakes prepared with baking powder would tend to injure the digestion as the amount of saline cathartic that would be ingested under conditions of normal diet would be very small and would provoke no catharsis or symptoms of any kind. But the findings warned against excessive use of baking powders. In discussing the effect of the continued use of baking powder biscuits, it states that the prolonged administration of saline cathartics, such as those remaining as a residue of the reactions of all known baking powders, even in small doses, tend to leave behind a condition of constipation and that it is certainly the experience of the medical profession that the practice of the regular administration of saline cathartics is not to be recommended. The process, therefore, of redosing self-

rising flour would lead to the use of excessive amounts of baking powder ingredients particularly, among that part of the people living under more or less poor economic circumstances, resulting in a lack of variety in their diet.

The investigation of Voegtlin, Sullivan and Myers,³ show that the amount of anti-neuritic vitamins in a flour may be measured by the amount of phosphorus they contain, and as soft-wheat flours contain less phosphorus than do hard-wheat flours of the same grade, foods made from soft-wheat flours would be more deficient in vitamins than those made from hard-wheat flours.

³ "Bread As a Food." (U. S. Public Health Service, Public Health Reports No. 333.)

The phosphorus added to self-rising flours as a leavening ingredient is in the form of a phosphate, an inorganic salt, which cannot be considered as containing vitamins; while the phosphorus existing naturally in a flour is largely in the form of phytin and phospholipins, which are organic salts. Organic phosphorus can be easily differentiated from inorganic phosphorus as the former is easily separated by extraction by alcohol and ether while the latter is not so extracted.

Excessive Use of Baking Soda

Furthermore, a number of these samples contained excessive amounts of residual carbon dioxide, which indicated the use of an excessive amount of baking soda. Voegtlin, Sullivan and Myers,³ have shown that vitamins are easily destroyed by slight excesses of sodium bicarbonate particularly, at the temperature at which biscuits are baked. Chemical control therefore becomes doubly important as a public health measure, and from the point of view of human nutrition. First, because the product from which it is made is deficient in gluten and certain essential accessory foods (vitamins), and second, because no control may mean excesses of soda, which destroy these vitamins, and therefore accentuate this dietary deficiency.

Baking experiments were made with these self-rising flours and they corroborate the results of the chemical examination. The self-rising flours made of inferior grades of flour yielded biscuits of grayish and dark, uninviting color and poor flavor. These samples showing a low amount of carbon dioxide, yielded biscuits that were low in volume and excesses of baking soda were also indicated by the yellow color of crumb in those samples showing exces-



These biscuits were made from different grades of self-rising flour, resulting in the author's conclusion that regulation of manufacture of self-rising flour is essential as health measure

² "Alum in Foods." (U. S. Department of Agriculture Bulletin 103.)

sive amounts of residual carbon dioxide. In this group of samples there was one where the baking soda and salt had been omitted in the process of manufacture, although, the label on the sack stated that the product contained soda and salt, and was ready to be mixed with either milk or water.

Figure 2 shows the result obtained by baking biscuits from a group of these samples. These biscuits were all baked under identical conditions of time, temperature and formula. "1" was baked from hard-wheat flour to which there was added commercial baking powder in the quantities stated on the label, that is, "four level teaspoons to the quart." In the case of this particular product this amounted to 7.2 per cent of baking powder. "2" was made from a high-grade soft-wheat flour and contained the same amount of baking powder as "1," "3" was made from an inferior grade of soft-wheat flour, from the same milling run at "2" and contained the same amount of baking powder as "1," "4" was made from a self-rising flour in which excesses of phosphate were found, and which was deficient in carbon dioxide. "5" was made from a sample of self-rising flour in which no baking soda or salt were found.

This photograph shows the difference in the volume and general appearance of the biscuits, but does not tell the whole story. The biscuits made from "1" and "2" had excellent color of crumb and crust, and good inviting ap-

pearance and flavor. Those made from "3," although fair in volume, were dark in color of crumb and were slightly bitter, due to the amount of offal material. But, those made from "4" and "5" were very dark, lumpy, doughy and irregular in texture, and were altogether uninviting and unpalatable.

The results of this investigation justify the conclusion that regulation in the manufacture of self-rising flour is essential as a health measure, as a food product is being made and consumed which is deficient in certain essentials and which if continued may have a detrimental effect on public health. It would also justify the adoption of standards of purity of wheaten flour and of the leavening ingredients used in the manufacture of self-rising flours, as well as the adoption of maximum limits of the amount of these leavening ingredients and of residual carbon dioxide and minimum limits of the amount of available carbon dioxide necessary to properly aerate the baked product.

The grade of flour required in the manufacture of this product should not be lower than that entitled to the unqualified designation, "flour." Sentiment seems to be crystallizing in favor of not applying this term to any grade below a "straight" grade. The standard of purity and the relative amounts of acid and alkali reacting leavening ingredients should be the same as those required for baking powders.

pet, which cost would appear at the sellers' end, were it not assumed by the broker when requested.

"Lastly, through the medium of arbitration boards, created by the National Food Brokers' Association, in conjunction with the National Canners Association, the National Wholesale Grocers' Association and the Southern Wholesale Grocers' Association, the broker is in position to settle disputes at a nominal cost, thus making a saving for both buyer and seller."

Disposal of Canning Wastes

The proper disposition of industrial wastes of various kinds, where such wastes were the cause of serious stream pollution, has long been a problem difficult of solution for sanitary engineers; especially has this been true of the food canning and packing industries.

However, according to a recent report of the United States Public Health Service, it would seem that a way has been found for the purification of tomato canning wastes and also from those from factories packing other vegetables and fruits by which such wastes may be discharged without nuisance or danger into comparatively small bodies of water.

The experiments referred to were carried on at Farnham, N. Y., and also at a tomato canning plant in Ohio. The wastes treated consisted of the liquids from washing down floors and cleaning utensils and apparatus and those from scalding the tomatoes, but did not include the tomato cores or skins from pulp; these, including the pulp, were hauled away and plowed under for fertilizer.

The method of treatment in brief was as follows: The liquid wastes were pumped into settling tanks in which about 85 per cent of the solid matter held in suspension was removed and the citric acid of the tomatoes largely converted into lactic acid.

The solids separated in the settling plants were disposed of on beds composed of a few inches of sand resting on a shallow bed of cinders. The effluent from the settling tanks was run through a bed of coarse cinders 4½ feet deep and later through a bed of sand of the same depth. The rate of filtration through each filter was about 75 gallons per day.

As a result of this treatment it was found that the effluent from the sand filters was clear and non-putrescible. Fish lived for six weeks in small concrete basins that were supplied only by this filtered waste. Neither odors nor other objectionable features that would militate against the use of tanks and filters near the canning factory were observed.

What is a Food Broker?

AN explanation of what a food broker is has been made by the president of the National Food Brokers' Association, James L. Ford, Jr. Mr. Ford's explanation is given in a circular issued by the National Food Brokers' Association. It reads, in part, as follows:

"The wholesale food broker functions primarily as the selling agent of the manufacturer of food products. His sales are made to the wholesale trade and his commissions vary from ½ to 1 per cent to 5 per cent, depending upon the commodity handled and the character of service rendered. In order to properly perform his duties as selling agent the broker must post himself on the markets of the world so that he may properly post the manufacturer as to the conditions of the market, the character of good wanted and the nature of his competition.

"While the commission or brokerage is paid only on the amount of the sale made and only if a sale is made, the actual selling of the goods is only a part of the service rendered.

"A manufacturer having brokers all over the country, and in some cases in the foreign field, may at the cost of postage secure in a short time in his office an accurate survey of existing conditions, both as to the general mar-

ket conditions and as to competitive conditions in every territory of the country and the world. This does away with the maintenance on the part of the manufacturer of a large intelligence department as well as a large force of selling representatives, and this service is paid for only if sales are made. The small manufacturer thus has access to an expert selling force which gives him the benefit of the nation's market and a source of information which he could not secure for an amount in excess of his total volume of business.

"Just as the broker saves the expense of selling and of collecting information for the seller, so does he function in the same manner as a saving factor to the buyer. The broker makes no charge to the wholesale buyer. The broker can render this service to both buyer and seller at such small compensation because of the fact that he represents a great many different manufacturers of diversified lines of goods, and necessarily does a large volume of business at an extremely low rate of gross profit. This gross profit will average about 2 per cent of the amount received by the seller and is paid for by the seller. The broker is paid a higher rate only when he warehouses, finances or advertises the prod-

Food Institute of New Jersey Organized

Purpose is to Set Standards of Quality for Products Made or Sold in State—Samuel Mueller is President

AT a banquet April 24, at the Oak Tree Inn, Newark, N. J., attended by 25 well-known food manufacturers, the Food Institute of New Jersey was formed. Frederic Dannerth, Ph.D., consulting industrial chemist, has been appointed general manager of the institute with headquarters at 96 Academy street, Newark. Ultimately it is hoped to include in the membership of the organization the following: Creameries, cheese producers, ice cream makers, bakers, packers and canners of meat, fish, fruits and vegetables, manufacturers of carbonated beverages, makers of baking powders, etc., roasters of coffee, cocoa beans and chicory, and producers of spices, salad dressings, condiments, sugar, honey, glucose, candy, butter, margarin, frozen and dried eggs, ice, etc., and cold storage plant owners.

In opening the meeting Samuel Mueller, president C. F. Mueller Company, Jersey City, N. J., manufacturer of macaroni and egg noodles, said: "The institute aims to set standards of quality for foods made or sold in the State. As one of the means to this end we will help the members pay more attention to the quality of raw materials offered in the state."

The aims of the institute were formally presented by the secretary, Dr. Frederic Dannerth, director of the Food Products Laboratory, Newark. He said in part: "The institute is planned as an economic organization for the material advancement of industries devoted to growing, canning and manufacturing food products. It is not a trade organization, but rather it stands ready to give aid at those points where national trade associations fail. It will not attempt to justify any improper act on the part of any food producer. It proposes to uncover in a dignified manner any person or corporation which tries to sell fake processes to food manufacturers or to the public and it will stand ready to give its endorsement to such food products, which by their quality and the conditions under which they are made, are a credit to the State. Further the institute plans to promote the welfare of food producers in all lines by open discussions of such subjects as advertising, selling, canning, packaging, shipping and producing.

A constitution was formally adopted as read and the following officers for the year ending July 1, 1923, were nominated and elected: President Samuel Mueller, C. F. Mueller & Company, Jersey City; vice-president, Frank Fischer, Fischer Baking Company; secretary-treasurer, Dr. Frederic Dannerth, director, Food Products Labora-



Dr. Frederic Dannerth, secretary-treasurer of the Food Institute of New Jersey

tory, Newark. The following directors were elected: Thomas Eckerson, the Eckerson Company, margarin; Gilbert Easton, Easton Mayonnaise Co.; Jack Augenblick, M. Augenblick & Brother, butter.

The principal address of the evening was made by James G. Berrien, specialist in economics, who spoke on "How the Consumer Can be Made to Respond." He discussed the color, size and shape of containers, numbers, food value, medicinal value, persistency, recipes and large and small areas for bill poster advertising.

James G. Berrien of New York, the speaker of the evening, said:

"The best method of making the consumer respond is to give him the most for the least. That is so long-headed and simple that you would think it would be universal, but it's not. To do this you must put out a good product, keep your labor working twelve months a year at fair pay and advertise. Thirty or forty thousand dollars' worth of magazine advertising a year is not enough to attract the consumer on a large scale. Newspaper advertising is one of the biggest helps."

Mr. Berrien then explained that the only way for a firm to become nationally known is to start by selling in its home town, expanding to surrounding

towns, then to the state and surrounding states and so on, advertising consistently all the time.

"Don't show women how to cook this or that with attractive recipes," he said. "Your woman of today has a lot of outside interests. Show her how she can spend less time in the kitchen and she will be interested. In making your appeal to the individual, don't tell how good you are and what a fine firm you have. He doesn't care about that. Show him that your product will help him; that it is used by the best people and don't drag anyone else into it by telling him how much better it is than such and such a product. In other words let him know that you are interested in him and he will take an interest in you."

After Mr. Berrien's talk there was a general discussion among the members, most of whom indorsed his theory of advertising and appeared optimistic as to the business outlook.

Among those present at this first meeting of the institute were:

Jack Augenblick, vice-president, Augenblick & Brother, butter.

J. A. Brady, manager, Van Wageningen & Schickhaus Company, pork packers.

William Brueckman, sales manager, Fleischmann Company, yeast products.

Charles H. Casterlin, bread manufacturer, Newark.

J. W. Devorss, manager, Swith & Company, Harrison, N. J.

Dr. Frederic Dannerth, director, Food Products Laboratory.

H. F. Eisinger, general manager, and F. J. Flack, sales manager, E. B. Muller Company, chicory.

Henry A. Guenther, sales manager, Peter Hauck & Company, barley malt.

H. Jones, Van Wageningen & Schickhaus Company, pork products.

W. A. Johns, manager, Swift & Company, meat packers, Jersey City.

W. Merritt, sales manager, Pohl Products Manufacturing Company, potato products.

Samuel Mueller, president, C. F. Mueller Company, macaroni and egg noodles.

F. S. Muchmore, sales manager, Hallock Denton Company, flavoring extracts.

William Ostermann, sales manager, Eckerson Company, Jersey City, oleo-margarin.

Henry A. Pohl, president, Pohl Products Manufacturing Co., potato products.

George D. Rogers, manager, provision department, Swift & Co., Jersey City.

Charles R. Simmen, bread manufacturer, Perth Amboy.

E. F. Stevenson, president, E. A. Stevenson & Company, margarin and oils.

John Vandenberg, honey producer, Mahwah, N. J.

W. Wehner, Hauck Nut Butter Company.

Frank Fischer, vice-president, Fischer Baking Company, bread products.

Food Flavors: Their Source, Composition and Adulteration

Many of Them Have Been Used for Centuries and Are Recommended Chiefly to Make Foods More Delectable

By J. W. SALE and W. W. SKINNER

Chemist in Charge of Water and Beverage Laboratory, U. S. Bureau of Chemistry, and Assistant Chief of Bureau



J. W. Sale, in charge of Water and Beverage Laboratory, Bureau of Chemistry

FOOD flavors include a large number of substances which ordinarily are classified as spices, essential oils, oleo resins, flavoring extracts, distilled waters, fruit essences, synthetic or imitation flavors, etc. In this discussion we shall depart somewhat from the usual lines of demarcation since after all, these divisions are quite indefinite and arbitrary, and shall discuss those food flavors of natural origin which the confectioner, bottler and other food manufacturers use in their finished products. A discussion of imitation flavors will be reserved for a later communication.

Standards for quite a number of food flavors have been promulgated by the United States Department of Agriculture, and have been published in Circular 136, superseding Circulars 13, 17 and 19. For the purposes of the enforcement of the Federal Food and Drugs Act, 115 spices, flavoring extracts, essential oils, cacao products and soda water flavors have been defined. No definitions or standards have been issued for imitation flavors but it is

EDITOR'S NOTE—This is the first of a series of three articles by J. W. Sale, chief of the Water and Beverage Laboratory, U. S. Bureau of Chemistry, and W. W. Skinner, assistant chief of the Bureau, written for The American Food Journal to aid food manufacturers, bottlers and confectioners to a better understanding of the source, composition and characteristics of various products used for the flavoring of foods and allied products. Attention will also be paid to the adulteration of food flavors, with explanations as to the regulations affecting their manufacture and sale.

considered that they should substantially take the place of the genuine, and of course, should comply with the requirements of the act relating to food, just as genuine food flavors should comply with them. Although a large number of flavors have yet to be standardized, the definitions or standards referred to above will serve as a guide to purchasers from the standpoint of informing them as to what they should get when they buy these articles.

Flavors used in food have but little or no food value and are used for the purpose of making our confectionery, beverages and other food more delectable and agreeable, and possibly of facilitating digestion. They add to the enjoyment of living, and for this reason are to be highly prized. Many of them have been known for centuries and are mentioned in ancient recipes for beverages, such as the following, which is set forth in a book entitled "Treasury of Commodious Conceits," printed in London in 1586.*

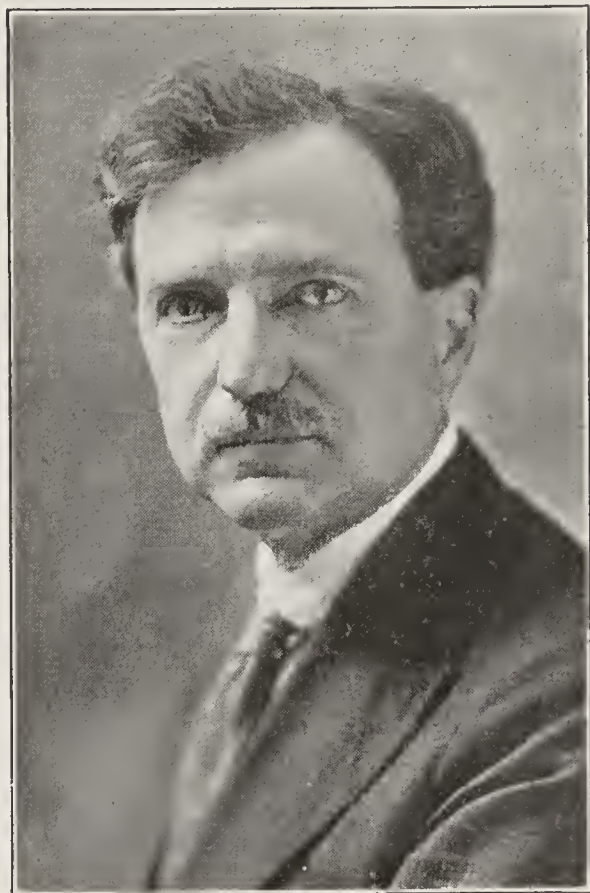
Aqua Composita
or

Dr. S's Imperial Sovereign Water.

"A gallon of gascoign wine, with an infusion of ginger, galingale, camomile, cinnamon, nutmegs, grains, cloves, mace, anise seeds, fennel seeds, caraway seeds."

The inventor of this beverage is said to have preserved his own life with this

* Excerpt from "The Book of Fruit Botting," page 90.



W. W. Skinner, assistant chief of the U. S. Bureau of Chemistry

water, "untill such extreame age, that he could neither goe nor ride, and he continued his life, being bed-rid for five years. Also the Archbishop of Canterbury used it, and found such goodnesse in it that he lived till he was not able to drink of a cup, but sucked his drink through a hollow pipe of silver."

Because of their history and places of production, spices, essential oils and other flavors are especially interesting since they call to mind the peoples and the customs of the Far East, of the South Sea isles and of other distant lands.

Sources of Food Flavors

Aromatic substances consist of various parts of plants or other vegetation. Cloves, capers, rose, elder, chamomile, etc., are buds or flowers; vanilla beans, pepper, peel of the citrus fruits, pimenta, paprika, etc., are fruit or parts of the fruit; tanko beans, anise, grains of paradise, fennel, dill, celery, caraway etc., are seeds; ginger, horseradish, sassafras, orris, etc., are roots; wild cherry, cassia, cinnamon, etc., are barks; guaiac, sandal wood, etc., are wood; and parsley, peppermint, sage,

sweet marjoram, etc., are stems or leaves. Moreover, various flavors are obtained from different parts of the same plant or tree. For example, orange oil is obtained by expressing or distilling the rind or a portion of the rind of the orange. The flowers of the orange tree yield orange flower water and an essential oil called neroli, and the leaves and young shoots of the orange tree yield petitgrain, an essential oil. The flavor of all of these aromatic substances can be purchased in various forms such as the substance itself or the oleoresin, essential oil, extract, emulsion, etc., manufactured from the spice. For instance, ginger root, ground ginger root, ginger oleoresin, oil of ginger, ginger emulsion, the standard ginger extract of the Department of Agriculture, the U. S. P. fluid extract and tincture of ginger and ginger soda water flavor, are all found on the market.

The preparation of the aromatic substance for sale as such depends of course upon its nature. The buds of the caper bush are gathered every morning and treated with salt and vinegar; cloves are dried in the sun or by artificial heat, vanilla beans must be cured since they do not have aroma when first picked. Kola nuts found on the market are dry and hard, but enormous quantities of the fresh nuts, which are twice as large as the dried nut, find a ready sale among the natives of Liberia and other parts of Africa, who chew them. Cardomom seeds after being picked are washed several times in soap solution, and then are thoroughly dried. Ginger root is scalded and dried immediately (black ginger), decorticated (white ginger), or scraped and bleached or sprinkled with ground limestone (bleached ginger root). The inner and outer coating of Ceylon cinnamon bark are ordinarily removed, whereas the cork layer of the cassia bark is usually left on. Spearmint leaves are merely cleaned and dried. These examples merely indicate in a general way the nature of the preparation of the spice for the wholesale market. Usually they are processed by grinding, making up into extracts, etc., before they are ready for retail trade.

Oleo-resins such as oleo-resin ginger, oleo-resin capsicum, oleo-resin vanilla, are manufactured by extracting the chopped, bruised or ground substance with alcohol, ether, acetone or other solvent and removing the solvent by distillation, leaving a viscous mass in which is retained most of the aroma or pungent principles of the original substance, but which does not contain much of the starch, fibre, etc., which do not possess a flavoring value. The essential oils are obtained by direct pressing of the aromatic substance, by steam or direct distillation, by enfleurage or absorption and by maceration. All of these processes are well known except possibly enfleurage, which process is

used with those substances such as petals which possess such a small quantity of flavoring substance, or such delicate flavors that they cannot be obtained directly by expression or distillation. In this process the petals are brought in contact with purified lard or fine olive oil, in frames, the solvent absorbing the fine odorous principles.

Terpeneless essential oils, as the name indicates, are oils which do not contain nearly so much of the terpenes and sesquiterpenes as the natural oils. They can be obtained by extracting the substance with dilute alcohol in which the terpenes are difficultly soluble or by processing the oil so as to reduce the content of these substances. The flavor or aroma is much more highly concentrated in the terpeneless oils than in the natural oil obtained by expression or ordinary distillation. Emulsions of essential oils and oleo-resins are made by whipping or beating them with mucilage of acacia, tragacanth, karaya or other gums, frequently with glycerin present. When properly made, they will undergo considerable dilution with water without "breaking." Extracts, essences and tinctures are made by dissolving the essential oils in alcohol or by macerating the bruised, chopped or ground substance in alcohol. Menstruums other than alcohol, such as alcohol and glycerin, peanut oil, corn oil, and other neutral vegetable oils, are used, especially since the passage of the National Prohibition Act.

Ordinary extracts or tinctures in many cases are further processed to render them suitable for use by bottlers and proprietors of soda fountains, for which they must be water soluble. In the case of ginger soda water flavor, this may be accomplished by mixing an alcoholic solution of ginger oleo-resin with powdered pumice stone and adding water in small quantities with constant shaking. Alkalies, such as magnesium carbonate are likewise frequently used to increase the solubility of the pungent or aromatic principle. Extracting the spice directly with water or weak alcoholic solution is usually not satisfactory because of the slight solubility of the aromatic principles and because starch and other non-odorous constituents which cause the flavor to deteriorate, are dissolved.

Composition and Characteristics of Various Flavors

Having thus considered in a general way the broad field of flavors, we are in a position to examine the individual flavors specifically, although it will be appreciated that lack of space will prevent more than outlining the salient features of each one of the more than one hundred flavors which are contained in the formulas used by the manufacturer of confectionery, bakery and culinary products and non-alcoholic beverages. Some of these flavors have been described many times and confectioners, bottlers, and housewives are quite familiar with their origin, prep-

aration and composition, while others such as prickly ash bark, St. John's bread, lovage, etc., which are quite widely used in soft drinks, sirups, etc., are less known. It is not our purpose to give formulas for compound flavors, since there will be appended a list of publications which contain scores of formulas for genuine and imitation compound flavors. It is thought that brief descriptions of the source and characteristics of the individual flavors will be of interest to the users, and broaden their general knowledge of products which they handle daily in the preparation of food. The data given in this paper has been collated from various sources including the files and special reports of the Bureau of Chemistry, but chiefly from the texts listed in the bibliography to which full credit is hereby extended.

1. Allspice or pimento is the dried unripe berries of an evergreen tree about 30 feet high, which grows in the West India Islands and in Mexico, Costa Rica and Venezuela. Large quantities are exported from Jamaica. The oil distilled from the spice consists chiefly of eugenol, which is also the chief or characteristic constituent of oil of cloves, cinnamon leaf, and bay. The volatile oil which is obtained from the spice to the extent of 3.5 to 4 per cent is soluble in two volumes of 70 per cent alcohol, and is quite similar to clove oil.

2. Almond: Bitter almonds are the fruit of a tree of moderate size bearing white flowers, which is cultivated in Europe, Asia, Northern Africa and California. The kernel or seed when pressed yields a fixed oil, which is not employed for flavoring. When the pressed cake is crushed, digested with water and distilled, oil of bitter almonds is obtained in a crude form, mixed with small quantities of the poisonous hydrocyanic acid, which must be destroyed before the article is used for flavoring. Ninety to 95 per cent of oil of bitter almonds consists of benzaldehyde which can be manufactured economically from coal tar. Apricot, peach, cherry and seeds of other stone fruits yield a volatile oil similar to oil of bitter almonds, and in fact the Department defines oil of bitter almonds as the volatile oil obtained from the seed of the bitter almond, the apricot or the peach. The oil or preparations made from the oil, viz., extracts, emulsions, etc., are used to give an imitation cherry flavor to confectionery, candied cherries, flavoring sirups and soft drinks. Benzaldehyde is frequently used as a substitute for the oil. It may be mentioned that benzaldehyde easily oxidizes to benzoic acid, a substance which has an odor.

3. Aloes: The well known bitter purgative medicine, is the expressed and inspissated juice of the leaves of certain species of the plant aloe. It is not to be classed as a food flavor but is included here, since it may be used in small quantities to give a bitter taste to certain beverages. Socotrine, Barbadoes, Curacao Cape and Natal aloes are commercial varieties.

4. Amber seed, musk seed or ambrett is a seed with a musky odor, of a plant cultivated in warm countries.

It is used as a perfume and is mixed with coffee by the Arabs.

5. Ambergris is a product of the sperm whale, found in its intestines and floating in the sea. It is nearly tasteless, and an alcoholic solution of it is used as an aroma fixative.

6. Angelica root and angelica seed: The leaves, root and seeds of the perennial herb *angelica officinalis*, all supply aromatic oils. The plant is a native of Europe and is cultivated in Saxony. The oil distilled from the root is most generally used, 0.5 to 0.1 per cent being obtained from the dried root. This oil has a high ester value, 12 to 40 per cent. Angelica balsam is obtained by extracting the roots with alcohol and evaporating. An oil is also distilled from Japanese angelica root. Angelica oil is employed chiefly in the manufacture of liqueurs.

7. Anise seed: Star anise seed: Anise is the seed of an annual plant, cultivated in Russia and other parts of Europe, Asia Minor and South America. Star anise, a tree 25 to 45 feet high is found chiefly in Southern China and Tonkin. The young fruits of the star anise are star shaped, hence the name. Most of the commercial oil is that of the star anise, which is practically identical with true aniseed oil, except that the latter is stated to have a more delicate odor and flavor. The principal constituent of both oils is anethol, which occurs to a considerable extent also in fennel oil. Anethol is used in the manufacture of anesic aldehyde or artificial hawthorn perfume. The oils are soluble in three volumes of 90 per cent alcohol. Anise is employed for flavoring pastry, soda fountain and other sirups, liqueurs and cordials.

8. Aspic or spike lavender oil: This flower oil is used largely in cheap perfumery. It has a camphoraceous odor similar to that of true lavender and rosemary, a high content of higher alcohols usually more than 28 per cent expressed as borneol. The pure oil is soluble in 2 to 2.5 volumes of 70 per cent alcohol. It is sometimes adulterated with turpentine and is used as an adulterant of oil of lavender. The French and Spanish oils are well known articles of commerce. Balm, balm mint or melissa is an aromatic flowering plant belonging to the mint family. It has a lemon-like odor and acrid taste, and is used in flavorings and medicines.

10. Basilic, basil or sweet basil: This oil is distilled from the fresh herb in Germany, France, Spain, Algeria, Reunion, Java and Mayotte. Used chiefly in perfumes. Its principal constituent is estragol (methyl chavicol) an odorous compound allied to anethol, which is found also in tarragon, anise bark, bay, fennel, and other essential oils. The leaves of the sweet basil are used as a condiment.

11. Bay: Sweet bay is a condiment and is the dried leaves of a plant which is a native of the Mediterranean, but grows in temperate climates. It should not be confused with oil of bay from the West Indies, which is used in making bay rum.

12. Benzoin is a balsamic resin obtained from plants growing in the East Indies and is known in commerce as Sumatra benzoin and Siam benzoin. The former has an aromatic and slightly acrid taste, and on digesting with boiling water, an odor of cinnamic acid or storax. The latter has a balsamic, vanilla like odor and slightly acrid taste.

13. Bergamot: The bergamot orange tree is cultivated in Southern Calabria and the oil is expressed from the fresh peel, mostly by machines. It is sometimes adulterated with artificial esters and neutral oils such as lemon terpenes. The pure oil has a high ester value from 34 to about 42 per cent expressed as linalyl acetate.

14. Betula, sweet birch: The bark of *Betula lenta*, the sweet birch, a North American tree, yields on distillation an essential oil almost identical with oil of wintergreen. Oil of sweet birch consists of about 99 per cent of methyl salicylate. Sweet birch oil and methyl salicylate, which is manufactured in large quantities, are used as substitutes for genuine oil of wintergreen, in flavoring beverages and confectionery.

15. Cade: An oil strong with empyreumatic principles extracted from juniper wood.

16. Cajeput: A distilled leaf oil with a powerful camphoraceous odor obtained from shrubs in Indian Archipelago, Malay Peninsula and elsewhere. Its chief constituent is cineol, which is found also in oils of eucalyptus, wormseed, lavender and spike lavender.

(To be continued in the next issue)

disease. These factors having thus been excluded, the dominating role of diet in the prevention and causation of pellagra must be referred primarily to the character of the protein (amino-acid) supply, this being the only other dietary factor at present known to be necessary to physiological well-being. On the assumption that all the dietary factors essential in human nutrition are known, the writers conclude that the essential etiological dietary factor is a specific defect in the amino-acid supply, probably in the nature of a deficiency of some special combination or combinations of amino-acids.

The authors also state that there is reason to believe that besides the specific amino-acid defect, pellagra-producing diets may and probably frequently have other more or less serious faults, including nonspecific amino-acid deficiencies which may operate as necessary etiological factors.

Self-Service in Retailing Subject of U. S. Bulletin

"Self-Service in the retailing of food products, is dealt with in Bulletin No. 1044 of the United States Department of Agriculture. The bulletin, which gives a detailed account of investigations made by F. E. Chaffee, formerly investigator in city marketing, and McFall Kerbey, assistant, Bureau of Markets, contains 48 pages and considers in detail the problem of distributing food products by self-service, the advantages of this system, and the methods of handling perishable farm products.

In conclusion the investigators state that the advantages of the self-service store are: "Relatively low operating expense; smaller investment in proportion to size of business; greater ease of filling employment needs; greater satisfaction to the average customer; and the possibility of educating customers through display. The disadvantages found in this investigation were: "That it is not applicable to all customers, but only to those willing to dispense with certain service for the sake of lower prices; that certain goods cannot be 'pushed' as when salesmen are employed; and that the possibilities of thievery are greater although the investigation did not show that thievery is responsible for any considerable loss."

In addition it is pointed out that proper location, convenient arrangement of both store and goods and intelligent buying, grading and pricing are important considerations in this type of store.

Australian Firm to Manufacture Meat Flour

An Auckland, Australia, firm has begun the manufacture of meat flour, which is defined as the lean meat of sheep and cattle reduced by a special process to a fine flour or meal.

Amino-Acid Deficiency a Factor in Pellagra

THERE is a considerable and convincing body of evidence in support of the view that diet is the primary controlling factor in the prevention and causation of pellagra, according to Joseph Goldberger, surgeon, and W. F. Tanner, passed assistant surgeon, of the United States Public Health Service, writing in "Public Health Reports."

To begin with, they point out, account must be taken of the fact that no unequivocal evidence of the transmissibility of the disease has yet been adduced. Attempts to communicate the disease from the sick to the well by inoculation have failed in all reported instances. The report of a successful inoculation of a monkey by Harris, reported in the *Journal of the American Medical Association* in 1913, is

discounted by the writers, as, they state, exhaustive efforts to confirm it have failed. The striking freedom from danger attaching to association and contact with cases is also offered in evidence.

The writers proceed to present evidence that diet is the primary controlling factor in the prevention and causation of pellagra. It is stated that cases have been observed to occur in individuals who were known to have consumed daily, for not less than two and one-half months, before the onset of the distinctive eruption, what is judged to have been a liberal supply of mineral elements and the known vitamins, which would indicate that a deficiency of these dietary factors is not essential in the causation of the

FOOD LEGISLATION

Summary of New York State Food Legislation

Secretary Foster of New York Wholesale Grocers' Association Comments on Bills Passed and Defeated

A SUMMARY of the food legislation either passed or defeated at the recent session of the New York State legislature, has been issued by H. M. Foster, secretary of the New York Wholesale Grocers' Assn. Governor Miller has disposed of all bills passed by the legislature, which affect the manufacture, packing and sale of food products. The late session was one of the shortest on record, but although it lasted less than three months, more than 3,000 bills were introduced, many of which were related to the food industry. Among the principal laws governing food, which were enacted are the following, some of which were referred to in the April issue of The American Food Journal:

Chapter 48, a recodification and revision of the State food laws. Formerly there were five statutes relating to the manufacture and sale of food. These statutes have been consolidated into one law known as the Farms and Markets law.

Chapter 122, repealing the provisions of the Penal law affecting food.

Chapter 364, making it unlawful to sell or offer for sale any substance in imitation or semblance of milk which is not milk.

Chapter 365, relating to the branding of condensed or evaporated skimmed milk, and making it unlawful to manufacture or sell any condensed, evaporated, concentrated, powdered, dried or desiccated milk, cream or skimmed milk to which there has been added or with which there has been mixed or blended any fats other than milk fat.

Chapter 136, requiring cider vinegar and apple vinegar to be made from the pressed juice of apples.

Chapter 270, amending the Penal law by prohibiting the use of representations of the national or State flags on business stationery.

Chapter 335, repealing the provisions of the Public Health law affecting food products.

Chapter 363, providing that whenever agents of the Department of Farms and Markets take samples of foods for analysis they shall mark duplicate samples for the person from whom taken.

Chapter 367, giving the Commissioner of Farms and Markets authority to establish grades for foods and farm products, to prescribe the use of such grades, and provide for the marketing, packing and shipping of foods and farm products so graded.

Chapter 360, providing that food in package form shall be marked with a statement of the net contents. Reasonable variations are permitted. Formerly the statute provided that containers might be marked with the net or gross weight, but if with the latter, the weight of the container was required to be stated.

The Bills That Failed

Bills on the following subjects were introduced during the session, but failed of passage:

Creating a State trade commission vested with broad inquisitorial and regulatory powers:

Requiring mixtures and compounds to be labeled with statements of the ingredients.

Creating a milk arbitration board, with power to fix the price of milk.

Levying taxes on the sale of carbonated soft drinks and matches.

Secretary Foster's statement says further:

"During the session bills were introduced designed to require mixtures and compounds to be branded with statements indicating all ingredients. If enacted, these bills would have (1) de-

stroyed such uniformity as now exists in New York and Federal food laws relating to compounds; (2) destroyed valuable property rights of merchants, who invest thousands of dollars in their products; (3) compelled manufacturers to disclose to packers in other States the ingredients of products, in the perfection of which much time, energy and money have been expended.

"The Senate bill was favorably reported and the Assembly measure reported and sent to third reading. In response to a request of wholesale grocers—members of the association—the Joint Agriculture Committees of the Legislature agreed to hold a hearing on the measures. This hearing was held in Albany on March 6 and was well attended by food manufacturers and representatives of the Department of Farms and Markets. A committee of wholesale grocers consisting of Messrs. Staib, Ward, Parsons, Bushnell and Sayre appeared and urged reasons why the bills should not be enacted and why they would be unfair to the merchant who is a citizen and taxpayer of the State. The bills were not enacted by the Legislature.

Hebe Company Believes New York Milk Law Does Not Affect its Product

THE Hebe Company, Chicago, manufacturer of a skim milk compound, in response to several communications asking if the sale of this product has been prohibited by recent New York State legislation, has sent a letter to every distributor of their product in the State, explaining briefly the provisions of the bill and why, in the judgment of the company's legal advisers, the law in question does not prohibit the manufacture or sale of Hebe in New York State. The letter in part reads as follows:

The provision of the bill which has raised some doubt in the minds of certain dealers as to whether the sale of Hebe has been prohibited is that section which prohibits the manufacture or sale of milk in its various forms to which any fat has been added other than butter fat so that the resultant product shall be in imitation or semblance of condensed or evaporated milk. We are advised by counsel that this provision does not prohibit the sale of Hebe for the reason that Hebe is not an imitation of condensed or evaporated

milk. Hebe is composed of but two ingredients, evaporated skimmed milk and a refined vegetable fat, both of which are the necessary substantive ingredients used in the manufacture of the product. There is no ingredient used for the purpose of imparting to the finished product, color or texture.

We do not anticipate that any person will be prosecuted under this law for selling Hebe but in the event that any such prosecutions are started we wish to assure all distributors that we will defend, at our expense, any person who is prosecuted under this section for selling Hebe for just what it is, that is, a compound of evaporated skimmed milk and vegetable fat.

We take this opportunity of reiterating that Hebe is not evaporated milk nor a substitute for evaporated milk but is a distinctive product—a compound of evaporated skimmed milk and refined vegetable fat—a "cooking liquid" intended for the economical preparation of cooked and baked foods. It must not be sold or offered for sale as evaporated milk or sold in response to a request for evaporated milk but solely in the manner we have indicated.

Scientific Cooperation with Food Manufacturers

The American Food Journal Broadens its Scope of Usefulness by Securing Services of Well-Known Food Expert—Winifred Stuart Gibbs, Director of Food Research Bureau, to Become Associate Editor

THE scope of usefulness of The American Food Journal will be materially broadened by the addition of Miss Winifred Stuart Gibbs to the editorial staff in the capacity of Associate Editor. Several new departments and new types of service to food manufacturers will be made available, full announcement of which is to appear in the June issue.

Head of Research Bureau

Heretofore Miss Gibbs has been Director of the Food Research Bureau, established by The American Food Journal last November and in that connection she has been engaged in research work and investigations for manufacturers in various branches of the food trades. As Associate Editor she will continue as active head of the Research Bureau and in addition will devote her entire efforts to the interests of The American Food Journal, her services being at the disposal of our readers at all times.

Her Experience Varied

Winifred Stuart Gibbs brings to The American Food Journal a wealth of experience of an unusual character and of a type peculiarly adapted to the needs of our readers and of our advertisers.

As a nutrition expert, writer, lecturer and organizer she has won for herself a prominent place in the food world. She founded and for ten years directed the Home Economics Department of the New York Association for Improving the Condition of the Poor, and served as lecturer at Teacher's College, Columbia University, New York, after leaving Rochester, where her professional career started. A student at Rochester University and at Mechanics Institute, where she was graduated from the normal course in domestic science, she was appointed teacher of cooking in the Rochester schools and later spent two years as resident teacher of dietetics at Rochester City Hospital.

Following her lectureship at Columbia University Miss Gibbs was called into conference by the War Labor Board and other departments of the Government at Washington during the

war. Since her return, she has been working in a consulting capacity, both with institutions and with manufacturers; and writing upon nutritional and dietetic subjects.

consumer and the laboratory worker. This will be treated in special articles, such as "The Food Manufacturer and the Community," through interviews with representatives of each group and in a series of open table talks.

There will be a series of terse comment and suggestion on the selling of foods, treated from the viewpoint of the consumer. Special foods will be featured, breadstuffs, dairy products, meats, etc.

Cooperation with Public Schools

There will be outlined a plan for co-operation with the public schools, wherein food manufacturers may hear of actual results accomplished in the matter of teaching children the importance of purchasing pure food. In this connection there will be given details of successful introduction of educational advertising into several schools. The service of the food manufacturer in the field of public health will be featured by means of a symposium by doctors and dietitians.

Other features will be developed from time to time.



Winifred Stuart Gibbs
Director, Food Service Bureau and Associate
Editor, The American Food Journal

Miss Gibbs is the author of "The Minimum Cost of Living," "Economical Cookery," "Chubby Children and How to Grow Them," and "Food for the Invalid and Convalescent." She has also contributed to leading publications such as "The Modern Priscilla," "The Ladies' Home Journal," "Boston Cooking School Magazine," etc.

Valuable Service to Manufacturers

Among the features of Miss Gibbs' service that will prove particularly valuable to food manufacturers may be emphasized especially the scientific co-operation, scientific research and investigation that few manufacturers are equipped or able to make before determining the ideal method of producing or marketing their product.

Miss Gibbs is especially interested in activities that tend to emphasize the common interest of three great groups: the food manufacturer, the

British Food Consumption in 1921

The proportion of home-grown and imported grains, meats, and dairy products consumed in the United Kingdom during 1921, are shown in the following table.

Commodity and year January to December, 1921:	Estimated total consumption Bushels	Proportion	
		home grown %	imported %
Wheat	266,896,000	23	77
Barley ..	100,893,000	64	36
Oats	242,180,000	88	12
Pounds			
Butter	649,600,000	43	57
Cheese	418,880,000	26	74
June, 1920, to May, 1921:			
Beef and veal.....	2,710,400,000	54	46
Mutton and lamb	1,164,700,000	40	60
Pork ¹	1,411,200,000	48	52

¹The total consumption of bacon alone can not be given.

EDITORIAL

Miss Gibbs Joins Staff

OUR readers will share the pleasure with which the publishers of The American Food Journal welcome an important new member of the editorial staff—Winifred Stuart Gibbs, Associate Editor.

Miss Gibbs and her constructive work in the food field are well known and we feel confident that in her association with The American Food Journal she will find opportunity for broadening her activities in an unusually effective type of service.

It is our ambition to so co-ordinate the scientific with the practical phases of food manufacture and distribution that our service will prove of real value to every element entering into the economic cycle—the food producer, the food distributor and the food consumer.

Self-Rising Flour—Does It Need Official Regulation?

THE efforts which have been put forth recently in certain States particularly in the South, to adopt legislative standards for self-rising flour lend interest to a series of baking experiments which have been conducted by Dr. Jacobs of the National Cereal Products Laboratory at Washington. Dr. Jacobs presents the results of these experiments in an article in this issue. This article, though written especially for The American Food Journal, is similar to data which Dr. Jacobs presented a few weeks ago at the spring meeting of the American Chemical Society at Birmingham, Alabama.

He purchased 37 brands of self-rising flour in the South and with these he conducted his experiments. A lack of uniformity, which was reflected in varying results in baking, was found. Dr. Jacobs' conclusion is that the results point to the need of official regulation of the manufacture of self-rising flour as a health measure. He says further that the experiments seem also to "justify the adoption of standards of purity of wheaten flour and of the leavening ingredients used in the manufacture of self-rising flour, as well as the adoption of maximum limits of the amount of these leavening ingredients and of residual carbon dioxid and minimum limits of the amount of available carbon dioxid necessary to properly aerate the baked product."

New Jersey Manufacturers Organize a Food Institute

A DEVELOPMENT in the food trade that surely should be of wide interest and may prove to be of unusual value is the organization of a food products' institute by representative food manufacturers of New Jersey, whose purpose it is to "give aid where national trade associations fail." This organization will concern itself with problems which are beyond the purely commercial phases of trade association work. It will seek to co-ordinate the scientific with the commercial side of food manufacture. It will aim to set standards for foods made or sold within the State; it will help its members to pay more attention to the quality of raw materials offered for sale; it will stand ready to give its endorsement to food products, which by their quality and the conditions under which they are manufactured are a credit to the State.

This is an ambitious program and well worth the serious co-operation of the twenty-five charter members who have become thus associated. The initial membership embraces only about 10 per cent of all the available members in New Jersey, but the directors are hopeful of enlisting all of these food manufacturers under its banner.

Subjects which are to be discussed at the institute's meetings will go outside of the usual matters of trade customs; they will embrace more technical matters such as the methods used in purchasing raw materials; the chemical problems involved in food manufacture; the application of economic principles to marketing of farm products; adaptation of machinery now used in other countries and problems in physiology, nutrition, dietetics, sanitation, etc.

This broadened interest of a group of food manufacturers in phases of their business which are collateral but not strictly confined to the every-day problems of buying and selling should make them bigger and better factors in food production and distribution.

What of Uniformity in Food Legislation?

IT seems unlikely that Congress will attempt any general legislation at this session, which will be concluded no doubt as quick as disposition is made of the tariff, the bonus bill and other such pressing matters. Therefore, none of the food legislation now pending is apt to come up for serious consideration until the next session which begins in December.

It is almost certain that a new bill to establish uniformity in food legislation will be framed for introduction at the next session. In this bill its proponents will seek to overcome the objections which both food manufacturers and food control officials see in the pending Calder bill.

Certain defects which the Calder bill possesses condemn it in the eyes of the food control officials and their opposition alone, with the support which they can muster in and out of Congress, is sufficient to defeat it should it come to a vote in its present form.

The American Food Journal is advised that the new bill will be introduced at the proper time and will seek the same result but in a modified form.

Food Research Institute Now Ready to Function

ONE year having elapsed since the announcement by the Carnegie Corporation of an endowment for a Food Research Institute at Stanford University, the directors of that institute, Dr. Carl L. Alsberg, Dr. Joseph S. Davis and Dr. Alonzo E. Taylor, have now made known the program for the work which is now to be begun.

While the precise program will be developed gradually, it is stated that it will have to do chiefly with such matters as the food elements in actual and normal standards of living and the physiological and social aspects of sub-nutrition; the sources, production, marketing and utilization of important staple foodstuffs such as wheat; the financing of farm operations and the manufacture and marketing of food products; the analysis of important food industries and the problems which they present; the technology of food manufacture, and the desirable scope of public control thereof; and the elements in a sound national policy with respect to food production, internal distribution and international trade.

The institute will endeavor not to conflict with existing organizations which are working along somewhat similar lines, but on the contrary will endeavor to co-operate with them.

The complete prospectus of the institute, published in this issue, is an important step in the movement toward the highest standards in food manufacture and distribution.

FOOD CONTROL MATTERS

New Regulations Affecting Imported Foods

Treasury and Agriculture Departments Issue Joint Ruling Regarding Imported Products Under Food and Drugs Act

JOINT regulations for enforcement of the food and drugs act of 1906, relating to the detention, exportation and destruction of imported food products, and action under bond in case of noncompliance with the provisions of the law have just been issued by the Treasury and Agriculture departments.

The regulations relate to the bulletin notices which are to be sent out of all entries of food and drug products from which samples have been requested, the treatment of entries violating the law; the penalties for failure to comply with the instructions of the Government, and the treatment of entries at nonlaboratory ports. While the regulations emanate jointly from a Treasury and Agriculture departments, they are signed not only by the heads of those departments but by Secretary of Commerce Hoover as well, the three Secretaries forming a committee to deal with this subject.

The new regulations are as follows: To Collectors of Customs, Officers of the Food and Drug Inspection Service, and Others Concerned:

1. The enforcement of the provisions of the food and drugs act of June 30, 1906, will, as a general rule, be under the local direction of the officers of the food and drug inspection stations of the Bureau of Chemistry, Department of Agriculture, collectors of customs acting as administrative officers in carrying out directions relative to the detention, exportation, and destruction of merchandise, and action under the bond in case of noncompliance with the provisions of the food and drugs act of 1906.

2. Merchandise subject to examination by representatives of the Department of Agriculture in accord with the provisions of the food and drugs act shall not be delivered to consignee prior to report of examination unless a bond has been given on the appropriate form prescribed in T. D. 37246 for the amount of the full invoice value of thereon, and on refusal of the consignee such goods, together with the duty to return such goods for any cause to the custody of the collector when demanded, for the purpose of excluding them from the country or for any other purpose, said consignee shall forfeit the full amount of the bond. Articles 470 and 473 of Customs Regulations, 1915, are amended accordingly.

3. As soon as samples are requested, and on that same day, a notice shall be

sent by the collector or appraiser to the importer on Customs Form 6521 to the effect that samples have been taken and that the goods must be held intact pending a notice of the result of inspection and analysis, and in case of the failure of the goods to comply with the requirements of the food and drugs act that they must be returned to the collector for disposition. This notice will also contain a statement to the effect that samples will be paid for upon presentation of proper vouchers. At laboratory ports this notice in the collector's name must be prepared simultaneously with the request for samples and by the employee filling out the request; at nonlaboratory ports by the collector.

Bulletin Notices

4. From the above-described notices there shall be immediately prepared by the officer making out these notices a list, on combined Form C 788, of all entries of food and drug products from which samples have been requested, and this notice shall be posted daily in the customhouse over the collector's signature as a public notice to importers that goods must be held subject to examination until definite release is given in so far as the provisions of the food and drugs act are concerned.

A list shall also be prepared on Bureau of Chemistry Form C 786 by the chief of the food and drug inspection station of those invoices which have been stamped "No samples desired, Bureau of Chemistry, U. S. Department of Agriculture, per * * *." It shall be posted promptly each day on the official bulletin board most readily available to importers—preferably that of the collector or appraiser.

5. The chief of station shall send the collector a notice in duplicate when samples will be requested from every shipment of particular articles of food or drug. The collector, during the period over which such request is effective, shall keep continuously posted in the customhouse on his bulletin board one of the copies signed by him as an official notice for the benefit of importers, advising them that samples will be taken from all shipments of these articles and to the effect that if such goods are allowed to go into consumption, except as definite release is received from the chief of station and until after the provisions of the food and drugs act have been definitely complied with, they will be strictly held

to the full penalty incurred under their penal bond given at time of entry. Combined Form C 787 shall be used. In such instances the usual notices regarding sampling individual shipments may be omitted as unnecessary.

6. As soon as the importer makes entry, the invoices covering foods and drugs and the public stores packages shall be made available, with the least possible delay, for inspection by the representative of the station. At the port of New York, or other ports where samples of certain free bulk goods are taken or examined on the docks by the station examiners, especial care shall be taken that the invoices covering the same be made immediately available, that notice regarding samples may be promptly sent.

No Violation—Release

7. As soon as examination of the samples is completed, if no violation of the act is detected, the chief of the station shall send a notice of release to the importer on Bureau of Chemistry Form "C 779—Release," a copy of this notice to be sent to the collector of customs for his information.

Violation

8. If a violation of the food and drugs act is disclosed, the chief of the station shall send to the importer due notice on Bureau of Chemistry Form "C 777—Importer, Date of Hearing," and at the same time to the collector similar notice, on Form "C 775—Collector, Detention," requesting him to refuse delivery of the goods or to require their return to customs custody if by any chance the merchandise was released without the bond, referred to in paragraph 2, being given.

9. If the importer does not reply to the notice of hearing in person or by letter within the time allowed on the notice, a second notice, Form C 777, marked "Second and Last Notice," shall be sent at once by the chief of the station, advising him that failure to reply will cause definite recommendation to the collector that goods be refused entry.

Rejected Goods

10. In all cases where the goods are to be refused entry, the chief of the station within one day after hearing, or if the importer does not appear or reply within three days after second notice, shall notify the collector accordingly on Bureau of Chemistry Form "C 776—Collector, Statement of Viola-

tion" in duplicate. Collectors will file by laboratory serial number or entry number as most convenient.

11. Not later than one day after receipt of this notice the collector shall sign and transmit one of the copies to the importer, which shall serve as notification to the importer that the goods must be exported or destroyed within three months from such date, as provided by law; the other notice to be retained as office record and later returned as report to the chief of station. The importer shall in all cases return his notice to the collector, properly certified as to the information required, as the form provides, and it shall then be transmitted to the surveyor, or to the inspector where there is no surveyor.

Goods to Be Conditioned

12. If goods may be released after relabeling or after certain conditions are complied with, a notice shall be sent on Bureau of Chemistry Form C 776 by the chief of station direct to the importer, a carbon copy being sent to the collector. This notice must state specifically the conditions to be performed so as to bring the performance thereof under the provisions of the customs bonds on consumption and warehouse entries, these bonds including provisions requiring compliance with all of the requirements of the food and drugs act and all regulations and instructions issued thereunder. The notice will also state the officer to be notified by the importer when the goods are ready for inspection.

13. The importer must return the notice to the collector or chief of station, as designated, with the certificate thereon filled out stating that he has complied with the prescribed conditions and that the goods are ready for inspection at the place named.

14. This notice will be delivered to the inspection officer, who, after inspection, will indorse the result thereof on the back of the notice and return the same to the collector or the chief of the station, as the case may be.

15. When the conditions to be complied with are under the supervision of the chief of the station, and these conditions have been fully met, he shall release the goods to the importer, using Bureau of Chemistry Form "C 779—Release," sending a copy to the collector for his information.

When, however, release is still conditioned upon destruction of rejections or of some portion of the shipment or the importer has been unsuccessful in meeting the conditions imposed, and the goods must be exported or destroyed, the chief of station shall immediately notify the collector of the results of inspection, on Bureau of Chemistry Form C 776 in duplicate. The collector shall sign and immediately transmit one copy to the importer and proceed in the usual manner.

16. If the goods are detained subject to conditioning to be performed under the collector's supervision, the collector, as soon as conditions are performed, will notify the importer on

Customs Form 6523 that the goods are released. If goods are not properly conditioned within the period allowed the goods must be exported or destroyed in accordance with the terms of the notice in C 776.

17. When final action has been taken on goods which have been refused entry or on goods release of which is subject to conditions to be performed under the collector's supervision, the collector shall send to the chief of station a notice of such final action, giving the date of release, destruction, or date of export and country to which exported, indorsed on Bureau of Chemistry Form C 776.

18. When intent to violate the act is evident, the privilege of relabeling, cleaning, and similar renovation will not be allowed. Similarly at the discretion of the station chief this privilege will not be allowed in those cases where through carelessness or otherwise shipments in violation of the act are offered for entry when the exporter or importer has been informed in connection with violations in previous shipments. In general when shipments with identical labeling have been detained for relabeling three times, the privilege of relabeling will not be extended.

19. When the privilege of sorting or renovating shipments is allowed, the importer must furnish satisfactory evidence as to the identity of the goods before release is given. This privilege shall not be granted except as stated conditions agreed to by the importer include segregation of goods at a stated place and apart from other goods of similar nature.

20. The chief of station or other officer by him appointed when it is deemed advisable, may require of the importer an affidavit as evidence that the goods have been properly disposed of, such affidavit to be executed before a notary public or other officer authorized to administer oaths generally.

21. When imported merchandise subject to the provisions of the food and drugs act is shipped to another port for reconditioning or exportation, the goods must be shipped under customs carrier's manifest, Customs Form 7512, in the same manner as shipments in bond.

22. Collectors of customs will perform the inspection service whenever goods are to be exported or destroyed, and in other cases when there is no officer of the station available.

23. Collectors of customs and representatives of the station will confer and arrange the apportionment of the inspection service according to local conditions. Officers of the station will, whenever feasible, perform the inspection service when cleaning, bringing up to standard and like reconditioning operations are involved.

Penalties

24. In case of failure to comply with the instructions or recommendations of the chief of the station as to the conditions under which the merchandise may be disposed of, the collector shall notify the chief of the sta-

tion in all cases coming to his attention within three days after inspection or after the expiration of the three months allowed by law if no action is taken.

25. The chief of the station upon receipt of the above-described notice, and in all cases of failure to meet the conditions imposed in order to comply with the provisions of the food and drugs act coming directly under his supervision, shall transmit to the collector of customs such evidence as he may have at hand tending to indicate the importer's liability and make a recommendation accordingly.

26. The collector, within three days of the receipt of this recommendation, whether favorable or otherwise, shall notify the importer that the legal period of three months for exportation or destruction having expired, action will be taken within 30 days to enforce the terms of the bond, unless in the meantime application for remission or mitigation of penalties incurred with definite offer of settlement is filed with the collector. The application should be in duplicate with a full statement of reasons under oath.

27. The collector shall transmit the application in duplicate, together with his own and the station chief's recommendation, both in duplicate, to the Secretary of the Treasury, Division of Customs, for his action.

Nonlaboratory Ports

28. At ports of entry where there is no laboratory of the Bureau of Chemistry, the collector or deputy, on the day when the first notice of expected shipment of foods or drugs is received either by invoice or entry, shall notify the chief of station in whose territory the port is located, on Bureau of Chemistry blue card Form "C 755—Notice from Collector Nonlaboratory Ports."

29. On day of receipt of card C 755, the station chief shall mail to the collector the yellow card "C 757—Notice to Collector Nonlaboratory Ports" if no sample is desired. This notice serves as an equivalent to stamping the invoices at laboratory ports with the legend "No samples desired. Bureau of Chemistry, U. S. Dept. of Agriculture."

30. If samples are desired, the station chief shall mail request on Bureau of Chemistry Form "C 783—Nonlaboratory Ports, Request for Samples."

31. The collector at once shall forward sample accompanied by Bureau of Chemistry Form "C 794—Label for Samples," supplied in tablets of 100, or if found mutually more satisfactory, on the larger Form "C 784—Imports, Description of Samples," which is used at laboratory ports for noting such data.

32. When samples will be requested from each shipment of certain foods or drugs, the chief of station shall furnish to collector and deputies at ports within the station's territory a list of such products, indicating size of sample necessary. Samples should then be sent promptly on arrival of goods, with

Form C 784 or C 794, dispensing in such cases with use of request Forms C 755 and C 783.

33. Blank forms mentioned above, "C 755," "C 784," and "C 794—Label for Samples" tablets, will be supplied by the chief of station to the collectors or deputies located at ports within the station's territory.

34. In all other particulars the procedure shall be the same at nonlaboratory ports as at laboratory ports except that the time consumed in delivery of notices by mail shall be allowed for.

35. The station chief shall be deemed a customs officer in enforcing these regulations.

36. Customs Form 4609 is abolished.

A. W. MELLON,

Secretary of the Treasury.

HENRY C. WALLACE,

Secretary of Agriculture.

HERBERT HOOVER,

Secretary of Commerce.

Labeling of Non-Alcoholic Flavoring Extracts

The Flavoring Extract Manufacturers' Association has published correspondence with Walter G. Campbell, acting chief of the U. S. Bureau of Chemistry relative to the labeling of non-alcoholic flavoring extracts. In its letter to Mr. Campbell the association asked for a ruling on the question of proper labeling, which was stated as follows:

It has been called to our attention that the Bureau of Chemistry takes the position that non-alcoholic flavors must not be labeled as extracts, and that the word "extract" must not appear upon the label of such non-alcoholic product. In other words, that it would be a misbranding to label a non-alcoholic flavor as "non-alcoholic lemon extract," but that the correct labeling of such a preparation would be "non-alcoholic lemon flavor."

We would appreciate a letter from you upon this point with a view of publishing same in a bulletin which we contemplate sending out to our membership at a very early date.

In this same connection we would like to have an expression from you as to whether or not you would consider it permissible to advertise these non-alcoholic preparations in the trade journals, etc., as, for example, "non-alcoholic lemon extract"?

In other words, suppose that a preparation were labeled "non-alcoholic lemon flavor," and at the same time advertised in the different publications as "non-alcoholic lemon extract," would this procedure be permissible, in your opinion?

To this Mr. Campbell replied:

From the standpoint of the Federal Food and Drugs Act, the term "extract" is limited to flavors having an alcoholic menstruum, but the term "flavor" is a broader designation and may be applied to flavoring products which have either an alcoholic or non-alcoholic menstruum.

Collateral advertising in newspapers and trade journals does not come within the jurisdiction of the act specifically. However, we do not consider it proper to designate a non-alcoholic flavor as

a non-alcoholic extract in trade journal or elsewhere.

He also referred to the fourth paragraph of C. R. II-b, which reads as follows:

The definition for "flavoring extract" given in Circular 136 calls for an alcohol product. Flavoring extracts prepared with vehicles other than alcohol, therefore, should not be labeled as "extracts," but no objection is made to the use of the designation "flavor" for them, provided they contain the same kinds and proportions of flavoring ingredients as are required by the standards for extracts, and provided, further, they are plainly labeled with some term in direct connection with the names of the articles to show that they are prepared with a vehicle other than alcohol.

Term "Maine Style" Misleads on Corn Not Packed in Maine

Use of the term "Maine Style" on corn packed in any State other than Maine will be considered a misbranding under the Federal Food and Drugs Act since an investigation has shown that it is misleading to consumers, according to a recent statement issued to packers of canned corn by the Bureau of Chemistry, United States Department of Agriculture. A reasonable time will be allowed for the disposal of present stocks of labels. The text of the statement follows:

"The term 'Maine Style' has been used for a number of years on the labels of canned corn packed in certain sections as a means of distinguishing the crushed grain type of canned corn from the whole or cut grain type. The Bureau of Chemistry has recently received complaints that this expression when used on canned corn packed in states other than Maine is misleading to purchasers who interpret the expression 'Maine Style Corn' as synonymous with 'Maine Packed Corn.' On receipt of these complaints the bureau made investigations in a number of the consuming sections which established that so-called Maine style corn is furnished by dealers in many localities when request is made for Maine corn, and that in such sections the expression is interpreted as having a geographical significance.

"The Federal Food and Drugs Act defines an article of food as misbranded if it be labeled or branded so as to deceive or mislead the purchaser. Since the term 'Maine Style' on corn packed in any state other than Maine is misleading, its use on such an article must be considered misbranding. The Bureau therefore announces that after a lapse of a reasonable period, which will be allowed for the disposal of present stocks of labels, canned corn packed outside of the State of Maine and labeled as 'Maine Style' will be considered as misbranded to an extent warranting proceedings under the Food and Drugs Act.

"There will be no objection to the use of any truthful and descriptive statement intended to designate the character of the pack."

Cut-Out Weights for Canned Spinach Announced

Cut-out weights for canned spinach as previously announced in the Service and Regulatory Announcement of the Bureau of Chemistry have been reduced according to a recent statement of the officials of that bureau who are charged with the enforcement of the Federal Food and Drugs Act.

The text of the statement sent to packers of canned spinach is as follows:

"The cut-out weights for canned spinach announced in circular letter of August 25, 1919, addressed to packers of canned spinach, swiss chard and beet tops, later published as Item 320, Service and Regulatory Announcements, Chemistry 24, and amended by circular letter of January 15, 1921, addressed to packers of canned spinach, published as Item 365, Service and Regulatory Announcements, Chemistry 27, are further amended as follows:

No. 2—(3 7-16 in. x 4 9-16 in. Sanitary and 3 3-8 in. x 4 9-16 in. hole and cap), 13 ozs.

No. 2½—(4 1-16 in. x 4 11-16 in. Sanitary and 4 in. x 4 3-4 in. hole and cap) (19 ozs.) 1 lb. 3 ozs.

No. 3—(4 1-4 in. x 4 7-8 in. Sanitary and 4 3-16 in. x 4 7-8 in. hole and cap) (21.5 ozs.) 1 lb. 5.5 ozs.

No. 10—(6 3-16 in. x 7 in. Sanitary and 6 1-4 in. x 6 3-4 in. hole and cap) (66 ozs.) 4 lbs. 2 ozs.

In other respects Item 320 remains unchanged."

Canadian Margarin Trade to Be Restricted

During the war Canada permitted the importation and manufacture of oleomargarine, on account of the scarcity and high price of butter. It is officially stated, however, that there will be no extension of the present regulations governing the trade, which terminate on August 31, 1922, so that after that date importation and manufacture will not be permitted. The sale of oleomargarine will be allowed until March 1, 1923.

It is stated that with the prohibition of trade in oleomargarine cheaper grades of butter from Denmark, New Zealand and Argentina will be placed on the Canadian market.

Montana Rules Against Basement Food Plants

The following regulation was passed by the Montana State Board of Health on April 6:

On and after April 15, 1922, no person, persons, firm or corporation shall establish or open any manufacturing bakery, manufacturing confectionery or other food manufacturing plant in any basement room or rooms where the floor of such room or rooms is more than three (3) feet below the surface of the ground.

Bill Standardizing Baskets and Hampers Favorably Reported

A FAVORABLE report on the bill to fix standards for hampers, round stave baskets and splint baskets for fruits and vegetables has been submitted to the House of Representatives by the Committee on Coinage, Weights and Measures.

The object and purpose of this legislation is to standardize certain sizes of hampers and baskets used in marketing fruits and vegetables, and to make it unlawful to manufacture, sell, or to offer for sale any hampers or baskets other than the sizes therein provided for. Extensive hearings were had on a similar measure introduced in the Sixty-sixth Congress, and the present bill is practically the same as that passed by the Committee of the Whole House on the state of the Union during the Sixty-sixth Congress.

The hearings disclosed that there are some 49 different styles of hampers

being used, and about 34 different sizes, ranging from the quart to 50 quarts; and the same condition exists relative to the baskets sought to be standardized by this act. This bill proposes to standardize five different sizes of hampers, stating the number of cubic inches each shall contain, with the diameters of each, thereby eliminating nearly 30 different sizes now in use. It seeks to do the same thing with respect to baskets for fruits and vegetables.

The measure has the unqualified support of the Department of Agriculture and the Bureau of Standards.

Believing that such legislation will be beneficial not only to the grower, shipper, and the manufacturer of hampers and baskets, but also—and especially—to the consumer, the committee unanimously recommends that the same be passed.

Ask for Ruling on Crown Cap Labeling

AT a recent hearing before the U. S. Bureau of Chemistry in Washington relative to the labeling of soft drinks, there was a large delegation from the crown cap division of the Glass Container Association. D. W. Hutchinson of Chicago, a member of this division and also a director of the National Manufacturers of Soda Water Flavors, was chief spokesman and pointed out a lack of uniformity in the special laws and regulations in effect in the various states relative to the labeling of soft drinks.

He said that some states have regulations which hold that statements appearing on the crown are not to be considered as a part of the label, but that all of the necessary statements must appear either upon a paper label attached to the bottle or be blown in the glass; that other states do not regard statements blown in the glass as sufficient; that still other states have various other special and contradictory regulations; that because of this situation it is impossible for those using bottles as containers to buy or use a

uniform lithographed crown, but that special crowns must be made up in many instances, all of which, it was stated, adds greatly to the cost.

Mr. Hutchinson's main contention was that the Bureau of Chemistry should take the lead in promulgating a uniform regulation which might be followed as a precedent by the various states, thus bringing about uniformity. This request was later submitted in the form of a concrete ruling which the bureau was asked to adopt. The ruling submitted was as follows:

All lettering upon a bottle, whether blown in the glass, lithographed or embossed on the "crown" or cap, or appearing on a paper label, shall be considered part of the labeling; and no bottled beverage shall be held to be misbranded upon which all of the information required by law is given legibility by any one of the above methods, or by two or three of them in combination, provided that qualifying clauses applying to its character appear in close connection with the name of the product.

Progress Being Made Toward Uniform Vinegar Regulation

THE American Cider and Vinegar Manufacturers' Association, Rochester, N. Y., reports that definite progress is being made toward uniformity of vinegar legislation in the various states. The association states that there is a general concensus of opinion that all arbitrary requirements in state laws relating to solids, ash and other elements, are unscientific and illogical and that the best legislation on the subject should follow such statutes as are in force in New York State, which only

contain definitions of the various kinds of vinegar, without positive requirements as to constituents, except acidity, and leave the identification of any vinegar inspected by the State department to the skill of the analyst and the development of analytical science. The entire subject in concrete form will be prepared and laid before representatives of the Association of Official Agricultural Chemists, Association of State Dairy and Food Officials and the Bureau of Chemistry at their next

meetings. A proposed model bill will be presented before the next meeting of the Association of Dairy, Food and Drug Officials.

Waste Vinegar Ruling Enforced

Manufacturers of vinegar made from evaporated apple products are in general relabeling their products in compliance with the new regulation. Reports show that state boards are indorsing the position of the Secretary of Agriculture on the labeling of waste vinegar. At a recent meeting of the board of chemists of the Bureau of Foods of Pennsylvania a resolution on vinegar from evaporated apple products was passed to the effect "that such vinegar is not entitled to be called vinegar without further designation, but must be plainly marked to show the material from which it is produced." The board decided that this product should be labeled "fermented vinegar made from evaporated apple products" and in addition there should be a clause stating that it should not be sold in bulk for cider vinegar.

James Foust, director of the Bureau of Foods in Pennsylvania, points out that the language of the Pennsylvania vinegar law is plain in the following clause: "No vinegar shall be sold or exposed for sale as apple or cider vinegar, which is not the legitimate product of pure apple juice, or vinegar not made exclusively of said apple cider, or vinegar in which foreign substances, drugs or acids have been introduced."

It is stated that Michigan's vinegar law has undergone no change, nor has there been any recent department ruling affecting vinegar, but it is believed by the Department of Agriculture of the State that vinegar manufactured from dried cores, skins and other products is not salable as apple cider vinegar, nor is it believed that the labeling of the original package or barrel will render it salable in this state.

Assistant Chief Food and Drug Inspector F. E. Rowland of the Kansas State Board of Health states that his department has not accepted the label "evaporated apple vinegar" as it is believed that this label is not informative and might be misconstrued. The Federal ruling is reported to be upheld in Indiana.

Dried Apple Pectin for Cows

Feeding trials and analyses recently made by the Bureau of Chemistry, Department of Agriculture, collaborating with the Bureau of Animal Industry, have led to the conclusion that dried apple pectin pulp should prove a valuable adjunct to the fare of dairy cows. It compared favorably with dried beet pulp and corn silage.

Apple-pectin pulp is the by-product remaining after pectin has been extracted from apple pomace, or, as it is sometimes called, cider-press cake. Heretofore it has been thrown away, but it has been found that when the pulp is dried it can be kept for a considerable time and, because of its reduced weight, handled and shipped economically.

Food Institute Makes Announcement

Research Organization at Stanford University Issues Prospectus Covering Work It Has Begun

THE Food Research Institute of Stanford University was founded in February, 1921, by the Carnegie Corporation of New York in conjunction with the trustees of Leland Stanford Junior University, California. It is organized for the purpose of intensive scientific study of the problems of the production, distribution and consumption of food. The Institute grew out of a suggestion offered by Mr. Herbert Hoover, and its location at Stanford University was due partly to the fact that this university possesses, in the Hoover War Library, a large and unique collection of documentary material relating to the food problems and other economic aspects of the Great War. The Carnegie Corporation guarantees stated funds for the work for a period of ten years. Stanford University provides quarters and facilities and has appointed the directors of the Institute to positions on the Stanford faculty. A prospectus just issued says:

"The control of its policies and the active direction of the work of the Institute are entrusted to three joint directors. The plan of the founders called for the selection of an expert in agriculture and food manufacture, an expert in economics and food distribution, and an expert in the physiology and chemistry of nutrition. In accordance with this plan, the following directors were appointed in April, 1921: Carl L. Alsberg, M.D., Joseph S. Davis, Ph.D., and Alonzo E. Taylor, M.D. At the same time an Advisory Committee was appointed comprising the presidents of Carnegie Corporation and Stanford University, ex officio, and the following additional members: Hon. Herbert Hoover, Secretary of Commerce; Dr. James C. Merriam, President of the Carnegie Institution of Washington; Mr. Julius Barnes, formerly President of the U. S. Grain Corporation; Dr. William M. Jardine, President of the Kansas State Agricultural College; Mr. J. R. Howard, President of the American Farm Bureau Federation; and Mr. George Roeding, formerly of the California Horticultural Commission.

Outgrowth of War Experience

"The founding of the Food Research Institute is an outgrowth of war experience. During the late war, possibly for the first time in history, food production and distribution, nutrition and dietetics had to be considered by governments as national and even international problems. In determining poli-

cies required to meet the emergency, food administrators sought certain scientific information, from agriculturists, economists, physiologists, and physicians. Many valuable data were readily furnished. On the other hand, much of the desired information was not in existence, not because, given time, it would have been difficult to obtain, but because no one before the war had asked questions or attempted to reach an adequate answer. Nutrition and dietetics had been studied mainly as individual problems, not as mass problems. The food supply had seldom been examined with adequate reference to its international aspects and to the particular commodities entering into it. Marketing problems had received mainly local investigation. There had been little co-ordination of studies in several important fields, and serious gaps were numerous. In many instances, therefore, the lack of essential information led to action more or less in the dark.

"The founders of the Food Research Institute were convinced that the scientific study of such problems, from a broad national and international viewpoint, was important in peace no less than in war. While recognizing the essential services which research work in federal and state agricultural departments and colleges had rendered and will continue to render, they considered that a non-governmental organization with university affiliations could have advantages in attacking certain kinds of problems without the limitations which apply to these agencies.

"The Institute proposes, therefore, to investigate significant food problems from the standpoint of their bearing upon national economy and well-being, to deal with them as mass problems, and to emphasize the commodity and international aspects. While it will frequently study data of individual businesses, it will do this not in order to serve as a business adviser, but primarily in order to discover principles of general importance.

"The precise program of the Institute will be developed gradually. Its exact form will be determined partly by the readiness with which essential data on particular subjects can be assembled, and by the work which is already in progress elsewhere. In the course of its activity the Institute will concern itself with such subjects as the food elements in actual and normal standards of living, and the physiological and social aspects of sub-nutrition; the sources, production, marketing, and

utilization of important staple food-stuffs, such as wheat; the financing of farm operations and the manufacture and marketing of food products; the analysis of important food industries and the problems which they present; the technology of food manufacture, and the desirable scope of public control thereof; and the elements in a sound national policy with respect to food production, internal distribution, and international trade.

"Numerous existing organizations are already conducting research into food problems, from one angle or another, notably the Department of Agriculture, state bureaus of markets, agricultural colleges and experiment stations; research organizations of banks, business houses, trade and marketing associations; and university departments, committees, or individuals. It will be the policy of the Institute to avoid, so far as possible, any serious overlapping of the work of established research organizations, public or private. It will endeavor rather to enlist the aid of existing organizations in the prosecution of researches in which there is a common interest, in which essential data are already collected or in process of collection, or in which another organization is in a better position to perform a portion of the research. Moreover, in numerous instances the Institute will consider its purpose accomplished if methods which it may develop, or sample studies which it may make, can be utilized by public or private agencies in undertaking similar investigations on a far more extended scale.

No Extensive Field Work Contemplated

"The research work will be done, for the most part, at Stanford University. In general, subjects for investigation will be selected which do not necessitate extensive field work, or in which the results of field investigations conducted by other competent organizations can be utilized. It is recognized, however, that certain investigations which the Institute can undertake will require more or less field work by the directors, fellows, or assistants, and for these necessary provision will be made.

"The Institute is organized as an integral part of Stanford University, with the status of a department for the purpose of directing research and recommending degrees. For the year 1922-23 it has established four fellowships for graduate study in the field of food research. The directors will guide the work of these fellows, and occasionally

a few other well-qualified graduate students, in studies which fall within the scope outlined above and which will frequently constitute a specific part of a piece of research which the Institute has in process. Such individual research will ordinarily form a part of the work toward a higher degree at Stanford University, and will be supplemented by such work in other departments of the University as may be necessary to fulfill the usual requirements for degrees.

"While the Institute does not contemplate undertaking extensive experimental work on its own account, the university's established facilities for experimental research on foods, nutrition, etc., are available to graduate students, and to a limited extent the directors of the Institute will co-operate in the direction of research in these fields. In addition, the directors will occasionally offer courses of instruction in other departments of the university.

Preparing Edible Oil From Crude Corn Oil

THE United States Department of Agriculture has published Bulletin No. 1010, entitled "The Preparation of an Edible Oil from Crude Corn Oil," written by A. F. Sievers, chemical biologist, and J. H. Schrader, formerly chemical technologist of drug, poisonous and oil plant investigations of the Bureau of Plant Industry.

The bulletin goes deeply into the subject, investigations of which were begun in 1919. Special attention was given to the manufacture of corn products as practiced in the so-called hominy mills and in starch and glucose plants. The fact was developed that although there were 22 plants in the country which produced corn oil, only four of these were equipped at that time (1919) for producing refined edible oil from the crude product. These four plants refined not only the oil produced in their own mills, but also a large proportion of that produced by other operators.

There is now, however, the bulletin states, a tendency among the smaller operators to consider the feasibility of refining their own crude oil, and consequently interest has been manifested in the refining process.

Detailed methods of refining are given, but the following summary gives a comprehensive idea of the subject matter covered:

The process of preparing an edible oil from crude corn oil consists of three distinct operations: (1) Neutralization with caustic; (2) bleaching with fuller's earth; and (3) deodorizing with steam.

Two methods of refining average corn oil are found to be about equally satisfactory. The soapstock obtained in refining corn oil is soft and slimy, and special means are necessary to harden

Results to be Published

"In part the results of researches will be published through established technical journals. Where circumstances render this undesirable, the results will usually appear in a series of publications to be issued by the Food Research Institute. In cases where certain lines of research are of interest to specific groups of readers, other or additional channels of publication will be sought in order to reach those concerned.

"The first year of the Institute has been largely occupied with the establishment at Stanford, the determination of general policies, the organization of a small staff, enlarging the collection of data which will be required for research, and making certain preliminary surveys and investigations designed to furnish the basis for more intensive studies. The work will be fully under way by the autumn of 1922."

it. In one of the proposed methods a large excess quantity of caustic is used, while in the other the same result is obtained by adding soda ash after the break. A maximum temperature of 55 deg. C. is recommended in the refining of corn oil.

The value of the chemicals used and the oil lost in the treatment is 0.628 cent per pound of neutralized oil with method 1 and 0.564 cent with method 2, of which more than 80 per cent is represented by the loss of oil.

The oil is bleached with fuller's earth according to the method generally used. Not less than 5 per cent of earth must be used. Corn oil does not bleach as much by this treatment as some of the other vegetable oils. The cost of the materials used and the oil lost in this bleaching process is about 0.22 cent per pound of bleached oil, of which approximately half represents the value of the oil lost.

The oil is deodorized by being blown with steam for several hours at temperatures above 400 deg. F. under reduced pressure.

The general arrangement of a refinery equipped to handle two batches of 25,000 pounds of oil a week is described and the passage of the oil through the several processes is discussed.

The cost of refining corn oil in such a plant as here described is found to be approximately 1.6 cent a pound. This cost figure was obtained by determining as nearly as possible the several charges for chemicals, oil losses, fuel, labor, and overhead. The overhead includes interest on the equipment and depreciation on both equipment and building. The value of the equipment, exclusive of the building, is estimated at \$40,000.

Copies of the bulletin may be obtained from the Department of Agriculture for five cents each.

Food Comparisons Not a Simple Matter

By FLORA G. ORR

Office of Home Economics, U. S. Department of Agriculture.

Carpets and cookstoves both fill important places in our busy lives. Yet we never think of comparing the two as to the amount of pleasure, satisfaction, and sense of well-being with which they furnish us.

Nevertheless, scarcely a day goes by that the Department of Agriculture does not receive letters from this or that food manufacturer asking for comparisons of his particular food with other particular foods, and such a comparison may be—in fact is apt to be—just as unfair as anything one might say about carpets versus cookstoves. To one who has spent years in the study of foods it is obvious that simple comparisons cannot be made between apples and beans, beef and parsnips, milk and alligator pears. The complicated demands of the body plus the complicated composition of natural foodstuffs would make it necessary to go into much detail in order to make any comparisons that could be considered at all fair and just.

The shipper of fruits and vegetables can well compare these with other fruits and vegetables, or he might with reason stress the sweets supplied by certain dried fruits and compare these with other sweet foods such as syrups, sugar and candy.

Syrups, sugars, sweet foods of every description are related and hence comparable.

Fish may be compared with meat if one so desires. Eggs, cheese, and milk might also be under discussion in this connection. But this is a case where the comparisons would be lengthy and involved in order to be complete. As for beans and nuts, which might possibly be considered as comparable with these other foods, to bring them in would require still more detailed explanation. Comparisons of food ought to be rigidly confined to foods which to greater or less extent play the same part in supplying bodily needs.

Competitive Examination for Dietitian For Health Service

The United States Public Health Service announces an open competitive examination for dietitian. Duties of appointees to this position, include purchase of food supplies for all messes operated in hospital; the planning of ordinary diets and diets for special diseases and the supervision of the preparation and the serving of all dietaries in the hospital both to patients and personnel. Compensation ranges from \$760 per year with quarters, subsistence and laundry for dietitians to \$1,344 per year, quarters, subsistence and laundry for chief dietitians.

Food Subjects Discussed by Chemists

Birmingham Meeting of American Chemical Society Brings Out Interesting Discussions

THE American Chemical Society held its spring meeting in Birmingham, Ala., April 4 to 8. Papers were presented by Juanita E. Darrah, M. S., on "Bleached and Self-Rising Flours"; "Composition and Nutritive Value of Yeast Grown in Vitamin-Free Media"; and "New Sources of Water Soluble C and Fat Soluble A in the Southeast." Edward Gudeman discussed "Foods, Facts, Fancies and Follies"; Edward F. Kohman, "Determination of Hydrogen Sulfide Evolved by Foods When Cooked at Various Temperatures"; M. F. Showalter and R. H. Carr, "Characteristic Proteins in High and Low Protein Corn"; E. G. Mahin and R. H. Carr, "Errors in the Determination of Fat in Cream"; William H. Ross, C. B. Durgin and R. M. Jones, "Commercial Purification of Phosphoric Acid by Crystallization"; E. H. S. Bailey, "A Dietary Study of Some State Institutions"; and Floyd W. Robinson, "Studies on the Electropure Process of Treating Milk."

Declares Bleached Flour Inferior

The paper presented by Juanita E. Darrah, M. S., Florida Research Specialist, Tallahassee, Fla., formerly Fellow of Johns Hopkins School of Hygiene, on bleached and self-rising flours, discussed the nutritive values of these flours and gave the results of a series of experiments in feeding rats.

The author's conclusions are that bleached flour is inferior. Self-rising flour is not necessarily inferior, if not bleached, and if milled and compounded correctly and marketed in original packages.

She recommends that stringent measures should be adopted to standardize such flours, and for protection of the honest miller there should be required a statement of the proportion of all ingredients on the label.

It is concluded that the better growth of rats fed on products made from self-rising flour over those fed on bleached flour diet, must be due to the presence of the phosphates in the leavening agents added in the manufacture of self-rising flour. This has led to a comparison of the phosphate and tartarate baking powders in addition to the flour problem. This work is still under way.

The paper on composition and nutritive value of yeast grown in vitamin-free media, presented by the same author, dealt with the problem of determining the nutritive value of yeast grown from such substances as extracts of wheat and alfalfa, after a series of treatments to destroy the vitamin content. The media of B. MacDonald and

McCollum was adopted for the experiments, but with a higher concentration of sugar. In addition, oats with vitamin destroyed were added.

Rats and guinea pigs were given various diets and the results were recorded.

The author's conclusions are:

1. Yeast may be readily grown in vitamin-free media through an exceedingly large number of transfers.

2. Yeast grown in this way contains protein and intogenous bases of undoubted nutritive value.

3. Evidence of dietetic value of yeast grown in such media is not substantiated. There was only very slight indication of presence of water-soluble B, and none of fat soluble A or water-soluble C.

The third of the papers presented by Miss Darrah, "New Sources of Water Soluble C and Fat Soluble A in the Southeast," pointed out that new sources of these vitamins have been found; water soluble B and C being abundant in Jerusalem artichokes and fat soluble A fairly abundant in Avocado pears.

Five guinea pigs were fed scurvy diet and succumbed in three weeks in so far as to show unmistakable symptoms of scurvy. Two of these died. One had just been through a previous attack of scurvy and had recovered. Another died, due to chilling on a cold day, when there was a delay in securing the artichokes. The other three recovered entirely on addition of the Jerusalem artichokes in 5 gm. quantities per diem, added to the usual scurvy ration.

When protein and mineral salts are supplied in suitable amounts, there is sufficient water soluble B in Jerusalem artichokes to promote normal growth in white rats, when fed as the sole source of this vitamin in quantities of three grams dried artichokes to ten of the dry water soluble B free mixed diet.

There is sufficient fat soluble A in avocados to promote considerable growth in white rats and to prevent sore eyes for a very long period, no xerophthalmia was induced. This is true of a diet adequate in other respects in protein, vitamin content and energy value. No reproduction tests have been secured.

Wastage of Agricultural Lands

Edward Gudeman of Chicago in his paper, "Foods, Facts, Fancies and Follies," discussed the subject of foods from the viewpoint of their production, distribution, inclusive of adulteration and substitution, and also from the

viewpoint of national habits and follies as to consumption and conservation. The paper was distinctly for the layman being free from scientific and technical terms. He called attention to the exhausting and wastage of good agricultural lands, and recommended the reclamation and occupation of the 2,225,000,000 acres of tillable land now lying barren, by employment of the unemployed, the suggestion made by President Roosevelt and Secretary Lane, in 1919, for employing the returned soldiers. Such action, he said, would provide labor for thousands of men, would greatly increase the resources of the nation and would create a demand for the products of the Government's nitrogen fixation plants, without coming into competition with existing fertilizer manufacturers.

A quantitative, accurate method for the determination of hydrogen sulphide evolved by foods, when cooked at various temperatures, was described by Edward F. Kohman, research laboratory of the National Canners' Association. This method consists of heating the food in a flask in an autoclave. The flask is fitted with a stopper carrying two glass tubes. The inlet tube passes to the bottom of the flask and opens in the autoclave. The outlet tube passes through the pine wood stopper of the flask and up through the top of the autoclave, and carries a glass stopcock. The autoclave is supplied with steam from a boiler.

By this device food may be heated at any temperature for any length of time, while the water content remains constant. At the same time the hydrogen sulphide formed can be collected and determined as barium sulphate.

"The method is a quantitatively accurate one," said Mr. Kohman, "and its application to other steam distillation under pressure is considered. It should have wide application in many organic preparations."

Protein Content of Corn

The paper presented by M. F. Showalter and R. H. Carr on "Characteristic Proteins in High and Low Protein Corn," pointed out that protein content of corn is subject to wide variations by breeding and selection. The highest protein ear that the writers had been able to produce contained 18.43 per cent and the lowest 7.62 per cent protein. After a study of the relative abundance of the different proteins in corn, it was found that zein was the important protein, which varied most, averaging 50.28 per cent in high protein and only 31.85 per cent in low protein corn.

The averages for the other proteins are glutelin 38.11, globulin, 3.70, albumen, 3.92, and amide, 2.81 per cent in the high protein and 52.15, 1.53, 8.21 and 6.25 respectively in the low protein corn. The zein is higher yet in high protein pop corn, averaging 57.24 per cent.

In their paper on "Errors in the Determination of Fat in Cream," E. G. Mahin and R. H. Carr, stated that the use of hydrocarbon oils, non-miscible with butter fat, for eliminating the upper meniscus in the necks of Babcock bottles has become quite general.

More recent experimental results in the Purdue laboratory have shown that in the hands of the ordinary dairy tester this results in readings averaging about 0.5 per cent lower than when the bottom of the meniscus, obtained without added oil, is used. As the latter has formerly been shown to be about 0.5 per cent lower than is given by the gravimetric method, the use of such oils (such as "glymol") ordinarily results in a loss of about 1.0 per cent of fat for each test.

Ten large creameries in Indiana averaged 100,000 cream tests each in 1917. Upon the assumption that each test represented a five-gallon lot, this represented approximately 500,000 gallons of cream. An experimental error of 1.0 per cent in the fat determination therefore meant a loss to the producer of more than 40,000 pounds of butter fat, if the "glymol" method was used in all cases. The value of this fat was approximately \$20,000.

The reading error has been found to vary according to the method of adding the oil. If the latter is added slowly and carefully, little or no error occurs. If the oil is run in rapidly as is ordinarily the case, it momentarily sinks into the liquid butter fat and as it rises it carries some of the latter upon its surface, thus decreasing the length of the residual fat column. It is conclusively shown that the method is not safe in the hands of the average dairy tester but the use of amyl alcohol for this purpose, substituted for hydrocarbon oils, gives reliable results in all cases.

Electropure Process of Treating Milk

A resume of his previous work on the treatment of milk by electricity as well as the detailed results of studies on the improved apparatus was given by Floyd W. Robinson in his paper, "Studies on the Electropure Process of Treating Milk." He also dealt with the results of studies on bacterial reduction; keeping qualities of the treated milk; effect on cream line; and a thoroughly conducted experiment on the effect of the process on bacteria of tuberculosis in milk. He pointed out the great value of the process and the automatic control features, describing the application of the electric current and the method of preventing the electrodes from becoming hot, thus elimin-

ating any heated taste. This process, said the author, produces a milk free from pathogenic organisms and with a phenomenal bacterial reduction, as well as excellent keeping quality.

The proteins, fats and carbohydrates and the calories per day per capita, were worked out for each of the groups of different institutions under the care of the Kansas State Board of Administration, by E. H. S. Bailey, in the paper, "A Dietary Study of Some State Institutions." Institutions selected were those giving shelter, food and clothing and the calculations were made from a complete report of all the food used for a series of months, sometimes during the entire year. As the number of inmates of these institutions was large and the conditions varied, an excellent opportunity was afforded for a comparison and for constructive criticism on the quality, variety and cost of the food furnished.

Purification of Phosphoric Acid

"Commercial Purification of Phosphoric Acid by Crystallization," presented by William H. Ross, C. B. Durgin and R. M. Jones, in collaboration, pointed out that commercial phosphoric acid contains, among other constituents, such poisonous impurities as lead, arsenic and fluorine. The paper then described the present method of eliminating these materials, where the acid was to be used in the manufacture of foodstuffs. Attention was drawn to the fact that this method, precipitation with the aid of suitable reagents, is limited in its effectiveness by the solubility of the precipitate in the acid.

It has been found that by concentrating phosphoric acid, at a temperature below 105 deg., to a specific gravity of 1.85 at 20 deg. and inoculating with a crystal of phosphoric acid the greater part of the acid will crystallize, leaving the impurities in the mother liquor. The crystallization may be repeated by centrifuging, melting the crystals at a temperature about 40 deg. C., cooling to ordinary temperature, adding water to bring to a specific gravity of 1.85 and again inoculating. Two or even one crystallization will usually be sufficient for acid of commercial quality, but by repeated crystallizations acid of any desired degree of purity may be obtained.

When phosphoric acid is prepared by the volatilization process and collected in a Cottrell precipitator it is usually of such a concentration that it may be crystallized with little or no initial concentration. The crystallization method is therefore especially adapted to the purification of volatilized phosphoric acid and experiments on the commercial development of the method are now in progress.

A paper presented by E. R. Miller, entitled "Do Velvet Beans Contain Vitamin B?" that in experimenting, fourteen pigeons were fed on an exclusive diet of polished rice until pronounced

symptoms of polyneuritis appeared. Seven of these were restored by feeding each five grains of corn. The other seven were fed five velvet beans each with the result that all were improved temporarily, but all died within two to six days.

Of another group of six which were fed polished rice, two died, apparently from starvation. Of the four brought down with polyneuritis, three were completely restored by administering to each 0.5 grams of an alcoholic extract of velvet beans and one was partially restored. This amount of extract represented three beans of average size.

The more favorable results obtained with the second group is probably due to the greater availability of the vitamin and is believed to show that the velvet beans contained a fair amount of vitamin B.

In "Studies of Flavors, Beverages and Related Products," dealing with the determination of methyl anthranilate by J. W. Sale and John B. Wilson, a colorimetric method for the determination of methyl anthranilate was declared genuine and imitation grape products, which depend upon the formation of a red azo dye were described. The reagent used by these authors was sodium-1-naphthol-2-sulphonate.

Method Is Recommended

Experimental data were given showing that the method was quantitative. Advantages of this method over others in current use were stated by the authors to be that the method is quantitative; the test is applied directly to the distillate, avoiding possible loss of ester through extraction and subsequent evaporation of the solvent; and the use of hydrazine sulphate in place of urea for destroying excess of nitrous acid. The method was particularly recommended in the examination of products which are believed to be sophisticated.

In the second presentation of these authors, the determination of methyl alcohol in extracts was considered. The merits of a number of well-known tests for methyl alcohol were discussed and data given, which showed their relative value and delicacy. The Denigee and Lyons' tests were stated to be the most satisfactory for examination of flavoring extracts suspected of containing methyl alcohol. The paper stated that flavoring extracts contain a variety of esters and essential oils, which interfere unless the analysis is conducted properly. The sample to be analyzed should be adjusted so that it will have a volum of 100 cc. and contain not more than 10 per cent of ethyl alcohol. Interfering substances may be eliminated by salting the sample, extracting it with petroleum ether previous to distillation and distilling, using a fractionating column. Practically all the ethyl and methyl alcohol will be found in 30 cc. of the collected distillate. The paper also described the colorimetric tests to be applied.



Ask Restoration of Packers as Food Distributers

California Co-operative Canneries Want Decree Modified or Set Aside— Serious Charges Against Former Attorney General

By CLARENCE L. LINZ

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A NEW phase has been injected into the recent injunction issued by the Supreme Court of the District of Columbia against the meat packers by charges that former Attorney General Palmer misused grand jury processes to obtain information which resulted in the issuance of the injunction, which have been filed with the court by the California Co-operative Canneries of San Francisco. The canners ask the court either to vacate the decree or modify it materially.

The petition filed by the canners asserts that the wholesale grocers, by eliminating the packers as distributers of commodities they handled, placed the retailers and consumers "at their mercy and thus arbitrarily and artificially keep up the price of food." It is charged that the grocers have carried on boycotts, reprisals and threats of coercion against any who have sought to have the injunction set aside or modified. The canners ask, if the court cannot see its way clear to vacate the injunction, that it be modified so as to permit the packers to restore to the producers their facilities of distribution on such a basis as the court may see fit to order.

The petition denies that the packers named in the injunction were either a combination in restraint of trade or had a monopoly in connection with the sale of fruits and groceries, it being set forth that the packers handled not more than five per cent of that class

of business transacted throughout the country. It is asserted that the packers had built up "the most modern, efficient, expeditious and economical system of food distribution ever known in this or any other country," and it was further declared that the proper use of that system enabled the consumer to secure his food commodities from the producer on terms most advantageous to both.

Wholesalers Charged with Monopoly

The National Wholesale Grocers' Association and the Southern Wholesale Grocers' Association are charged by the canners with having influenced former Attorney General Palmer in their favor, with the result that the injunction gave them a monopoly of the grocery lines. As a result of the elimination of the packers' distribution facilities, it is charged, "food prices remain high although growers of food are receiving low prices." It is further charged that the Southern Wholesale Grocers' Association had previously been convicted of violating the anti-trust laws and at present, it is alleged, besides being active in opposing a modification of the injunction, the association in addition to making "boycotts, reprisals and threats of coercion" against those who do seek to secure a modification, is also attempting to "terrorize and coerce both those of whom they buy and those to whom they sell and dictate the course of conduct of each and to enforce some of their own

methods." Thus, it is pointed out, the wholesale grocers have both the canners and manufacturers of foodstuffs and the retailers at their mercy. The setting aside of the decree, the petition points out, would result in fruit and vegetable growers getting fairer prices for their products.

"The most simple solution," the petition sets forth, "is to vacate the injunction in its entirety or at least modify it so as to restore to the producers the use of the packers' facilities for distribution." This plan would enable the producers, canners and food manufacturers to reach the smaller dealers at the least possible cost, while the consumption of the products would be increased because of the lower prices, thus benefiting both the producing and consuming classes.

Ask That Injunction Be Vacated or Modified

"If the injunction be not promptly vacated or modified," concludes the petition, "the very extensive and economic facilities of the packers for food distribution will entirely disappear and the producers and consumers will be left at the mercy of the wholesale grocers, as no system of distribution other than theirs will be available. The destruction of the packers' system of food distribution will not tend to bring the cost of food back to normalcy, nor will the denial of the future right to use such facilities keep down the cost of food. A continuance of the decree is

not in the best interests of the public but serves only the selfish purposes of the wholesale grocers."

The petition asserts that Armour & Company and Wilson & Company are willing to distribute foodstuffs with their facilities on a commission basis. It is also asserted that the plan offered by the petition meets with the approval of the Department of Agriculture and

the petition is accompanied by a report of the inter-departmental committee which recently held hearings in the matter in which it is suggested that the California producers apply directly to the District Court for modification of the injunction. The attorney for the canners announced that application will be made to the court for an order giving them a right to enter the litigation.

It developed at hearings which were held in Washington recently regarding the so-called packers' consent decree that Armour & Company held a mortgage of \$250,000 on the properties of the California Co-operative Canneries in San Jose and Visalia, California, and that the packing company was directly interested in the distribution of the organization's output.

When Does Price Cutting Become Unfair Competition?

AN investigation to determine when price-cutting becomes an unfair method of competition has been asked of the Federal Trade Commission by the Tobacco Merchants' Association, and the action of the commission on the appeal will be of interest to the food trade, in which exist many of the evils of which the tobacco merchants complain.

In a petition submitted last month to the commission, it is pointed out that wholesalers throughout the country are cutting prices on certain brands of cigars, cigarettes and tobacco. These price cuts are being made, it is declared, for a variety of reasons, among those quoted being for the elimination of competition among manufacturers, to kill competitive brands in order to

foster the sale of private brands, to foster the sale of other commodities, not of tobacco, on which the profits were such as to offset the losses incurred by the cut prices on tobacco, and to lessen competition among the wholesalers.

"Moderate price-cutting, when resorted to by business rivals as a means of competing for trade, is not unhealthy," declared Charles Dushkind, counsel for the tobacco association, who presented the petition to the commission. "It puts life into competition and operates as an effective stimulant to business. But when price-cutting ceases to be moderate and becomes reckless and ruinous, it no longer constitutes a fair method of trading, and instead of acting as a stimulant to business it has

quite a contrary effect. It not only forces a great many out of business, but it discourages those who remain in it.

"We maintain that when staple goods of standard values are sold at, or below cost, it must be perfectly obvious that the practice is indulged in for sinister purposes, for it is safe to assume that no man is engaged in business for philanthropic reasons, and it makes no difference whether the purpose is to destroy a rival, or to injure the good will of a popular brand, or to attract trade to other lines of merchandise which yield a satisfactory profit, the practice is vicious. It is certainly unfair and should be condemned under Section 5 of the Federal Trade Commission Act."

Condemnation of Misleading Labels by U. S. Supreme Court May Affect Foods

A REVOLUTIONARY change in advertising, which may have its effect felt in the food industry, is expected to result from the recent decision of the United States Supreme Court in the Winsted hosiery case, upholding the order of the Federal Trade Commission upon the company to discontinue the use of labels or brands bearing terms which would mislead the public into believing the commodity so labeled to be composed of a material other than that of which it was really made. The order of the commission resulted after a showing that the company labeled as "wool" underwear which contained but a very small percentage of that material.

While the opinion of the court is confined to the specific commodities with which it was dealing, the decision will

materially broaden the jurisdiction of the Federal Trade Commission with respect to unfair trade practices, and constituted a real victory for the commission since it overruled the findings of lower courts.

The Supreme Court held that when misbranded goods attract customers by means of the fraud which they perpetrate, trade is diverted from the producer of truthfully marked goods. That these honest manufacturers might protect their trade by also resorting to deceptive labels is no defense. "The fact that misrepresentation and misdescription have become so common in the knit underwear trade that most dealers no longer accept labels at their face value does not prevent their use as an unfair method of competition," declared the court.

"The honest manufacturers' business may suffer, not merely through a competitor's deceiving his customer, the retailer, but also through the competitor's putting into the hands of the retailer an unlawful instrument, which enables the retailer to increase his own sales in the dishonest goods, thereby lessening the market for the honest product."

Officials of the Federal Trade Commission, in declaring that this decision will revolutionize advertising, assert that the court's findings are so clear and of such wide scope that there will be little difficulty in the future in forcing firms who are misbranding goods or misrepresenting their quality in advertising to desist from these practices as being unfair methods of competition.

Packers and Stockyard Regulation Act Upheld by U. S. Supreme Court

THE constitutionality of the packer and stockyard regulation act of 1921 was affirmed on May 1 by the United States Supreme Court in a decision in which it was declared that the stockyards "are not a place of rest or final destination, but a throat through which the current flows, and the transactions which occur therein are only incident to this current from the West to the East and from one State to another."

The case was brought by commission merchants and dealers in the Chicago stockyards, who sought to restrain the Secretary of Agriculture from en-

forcing the law under the contention that the act was unconstitutional insofar as it sought to control them. In addition to the constitutionality of the law, the issue was raised as to whether the business done in the stockyards between the receipt of the livestock and its shipment is a part of interstate commerce.

The stockyards of the country were considered by Congress as great national public utilities to promote the flow of commerce, declared Chief Justice Taft, in delivering the court's opinion, and in enacting this legislation it was assumed "that they conduct a busi-

ness affected by a public use of a national character and subject to national regulations. That it is a business within the power of regulation by legislative action needs no discussion."

The decision in the Swift case, it was asserted in the opinion, disposed of the question of interstate commerce in stockyard transactions. The judgment in that case gives a clear and comprehensive exposition which leaves in this case little but the obvious application of those principles, it was said, which principles "have become a fixed rule of this court in the construction and application of the commerce clause."

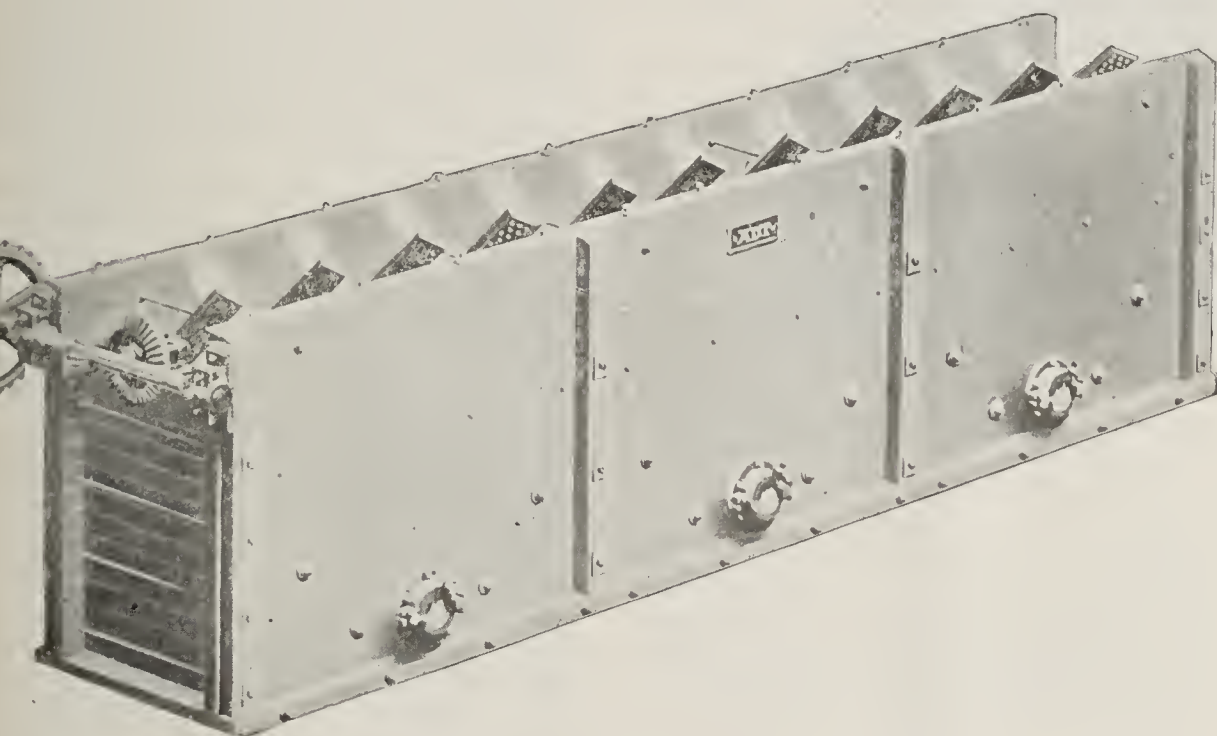
MACHINERY AND EQUIPMENT

Machinery for Manufacture of Potato and Other Vegetable Flour

Descriptions of the Process Developed by the John B. Adt Company of Baltimore, Md.

The John B. Adt Company, Baltimore, Md., has recently developed machinery for the manufacture of flour from potatoes and other vegetables, following experiments along this line which were conducted during the re-

cent war. The John B. Adt Company, in this connection, reports that its investigations show that vegetable flour which at present largely means potato flour, is being increasingly produced in the United States.



This potato cooker is provided with a perforated bottom, which permits cooking in a minimum time. Potatoes are delivered from this cooker to the flaking machine.

Prior to the war, about 95 per cent of the potato flour consumed in this country was imported from Germany. There have been in the past attempts to market potato flour manufactured in the United States, but some of these flours were actually potato starch flour, which requires scalding.

Not only is the cost of manufacture of vegetable flours low, amounting to about 1½ cents per pound, depending upon the cost of materials, but the food value is declared to be comparable to wheat flour. By pre-cooking the vegetable to be milled into flour, the characteristic vegetable flavors and qualities are developed and the flour retains in concentrated form the protein and carbohydrate constituents of the original vegetables.

Although the most important of vegetable flours today is that made from potatoes, as a whole, they may be readily divided into three main groups: White and sweet potato flours; pea and bean flours and squash and pumpkin flours. Various uses are possible for the flours of these three groups. The white potato flour is useful to flavor

useful in breads, muffins and cakes and may be used in pies, where it partially takes the place of eggs. Pea and bean flours by experiment have been found good in soups, stews and gravies. Squash and pumpkin flours would be chiefly valuable in the baking of pies.

The Process of Manufacturing

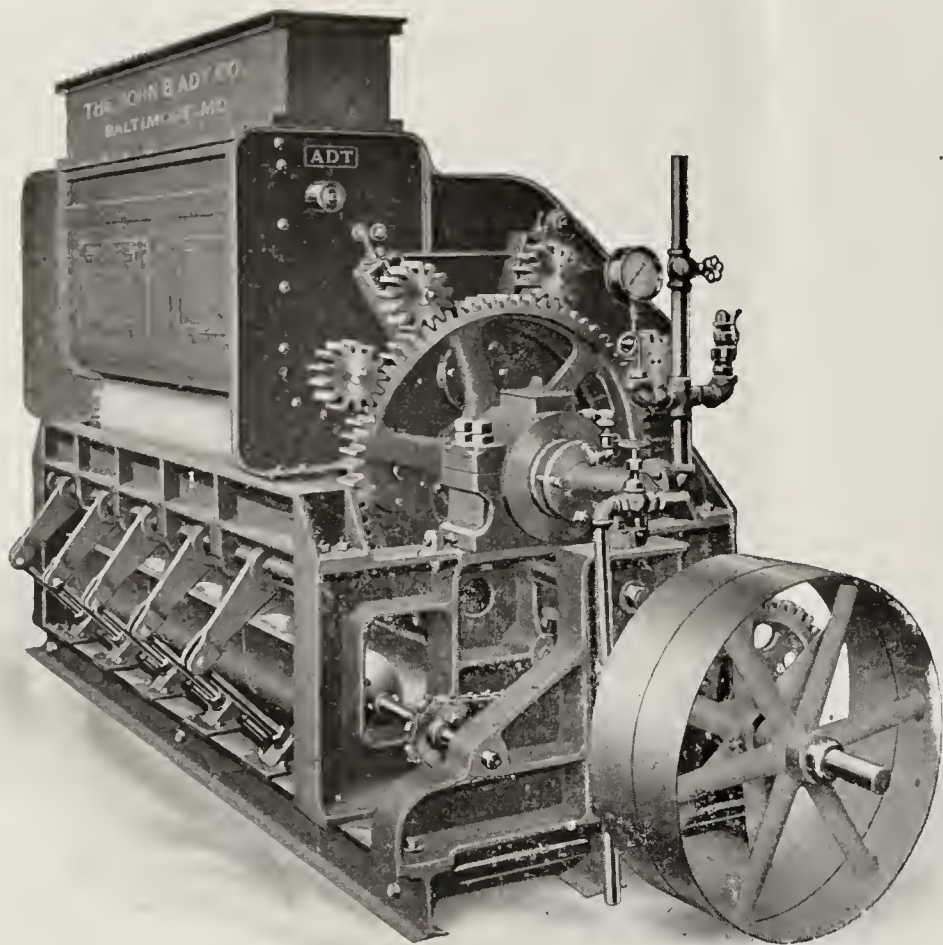
In the manufacture of vegetable flours the same process is used regardless of vegetable, the process differing only in the preparation before cooking. The first step is a thorough cleaning of the vegetable. Mills are generally equipped with a machine for washing and peeling the potato. When this operation is completed on a charge of material, the operator at the machine opens a gate and the potatoes are discharged into the buckets of a conveyor, which carries them in a slow moving stream across the picker table, where they are inspected and any showing rot or imperfection are removed. At the end of the inspection the potatoes drop into a second conveyor, which carries them to a bin, situated directly above the cooker. Under a 15-lb. steam pressure they are cooked for from 15 min. to 25 min., the time of cooking depending upon the size and quality of the vegetable being handled, the result desired being to reduce them to a mealiness that mashes easily.

From the cooker, the potatoes are discharged into another conveyor, by which they are brought to the flaking machine. Here practically all moisture is removed from the mashed vegetable, which is converted into a sheet of dry fiber, so thin that during the action of the machine it is broken into small particles. The flaker is equipped with either one or two steam heated cylinders, revolving outwardly. The potato mash is fed through a hopper onto the cylinders from which it is scrapped. This fiber comes off the roll in a continuous sheet, as thin as tissue paper and is broken up by the conveyor in a trough below the rolls, from whence it is carried to a fan, which blows it to the flake bin. From here it is fed into an ordinary attrition type of mill, which converts it into the final state. It then goes into the flour bagger, where it is packed as ordinary flour.

Chemical analyses of flour produced from white potatoes shows 10.29 moisture; 3.22 ash; 8.68 protein; 0.32 fat; 77.49 carbohydrates; 1,616 calories per pound; and 3.32 sugar. This may be compared to an analysis of wheat flour showing 12.00 moisture; 0.42 ash; 12.50 protein; 1.00 fat; 73.83 carbohy-



The potatoes are thoroughly washed in this washer, which delivers a clean product ready for the cooker.



Flaking machine viewed from the driving end. Many of these plants are now installed and in successful operation.

drates; 1,647 calories per pound and no sugar.

Cost of Flour Manufacture

The following table of cost data, prepared by the John B. Adt Company,

presents a fair estimate of the cost of producing a pound of potato flour. The figures were taken from a plant using two units capable of handling 3,000 pounds of potatoes per hour, with a net yield of 600 pounds of flour.

Material per hr.	Cost per hr.
450 lb. of coal at \$.003.....	\$1.35
5 men 1 hr. at \$.50.....	2.50
Oil, water, light, etc.....	.70
Depreciation and interest on investment of \$40,000 at 15 per cent	1.25
6 bags of potatoes at \$.20.....	1.20
Miscellaneous expense	2.50
Total	\$9.50

With the cost for 600 pounds of flour, \$9.50, the cost of one pound is approximately 1½ cents. The cost of manufacture depends also upon the quality of the potato (starch content) and the size of the plant.

In favor of a wider use of vegetable flours it is agrued that one of their characteristics is the avidity with which they absorb water, because of their concentrated form. They require a larger volume of water or milk to bring them to consistency than ordinary wheat flour and produce more of a given recipe than is otherwise obtained. The sugar content of the vegetable used is much increased in the flour, a relatively small sugar content in the vegetable being multiplied several times in the flour. In the case of sweet potato flour the sugar content reached is 28.23 per cent, which permits of considerable reduction in the quantity of cane sugar used. In the baking of bread it is pointed out that the use of potato flour reduces the cost of baking, 12 pounds of vegetable flour to 582 pounds of wheat flour producing a highly satisfactory loaf of bread.

Automatic Wrapping Machine Described

"The Modern Package" is the title of an attractive booklet just issued by the Stokes & Smith Company, Philadelphia, setting forth the merits of the tight-wrapped package produced by its automatic wrapping machines for rectangular and cylindrical packages.

This package may be a plain, chip-board or newsboard carton with a printed or lithographed wrapper glued to its entire surface. The booklet states that this package costs but little more than a printed carton and less than a printed carton covered with a waxed-paper wrapper.

Among other advantages claimed for this package are: That the printed or lithographed colors show to better advantage on the paper wrapper than on the board of which the carton is made; that the wrapper, glued tightly to the carton, stiffens the package, increasing the strength as much as 50 per cent; and that the contents of the package are preserved with a constant moisture content, and are fully protected against dust, insects, and odors, with no loss from leakage of sifting.

The automatic wrapping machine wraps these packages in sizes from 5-cent packages up to five-pound flour cartons, at speeds ranging from 45 to 60 packages per minute.

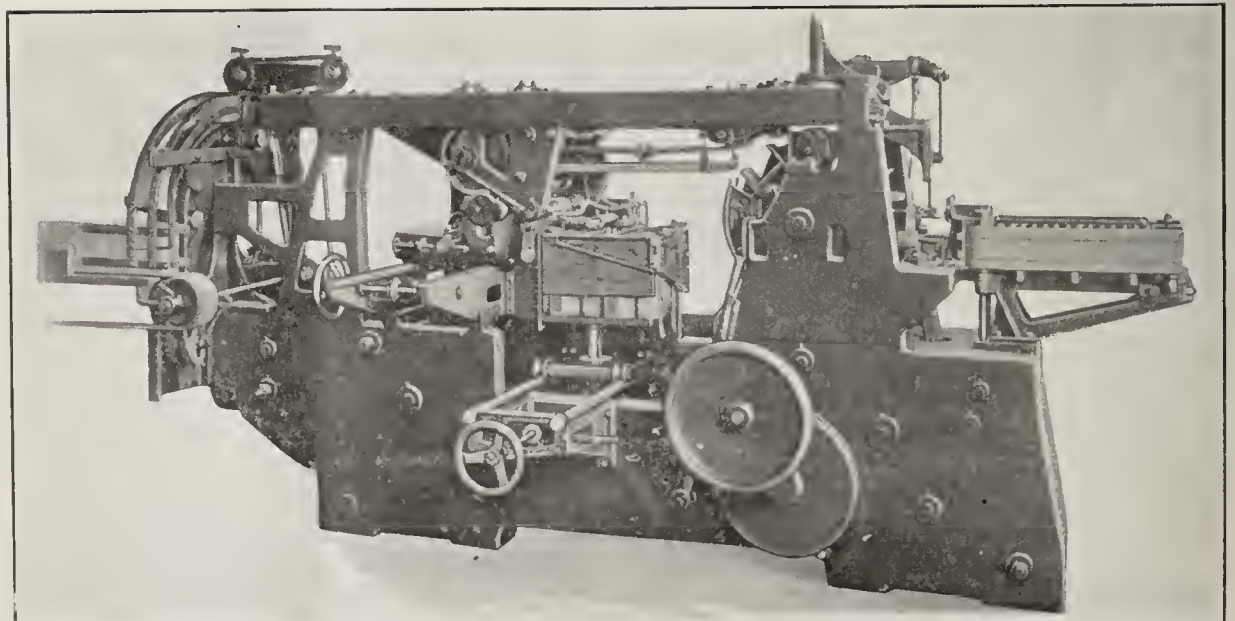
Operation is entirely automatic, the

wrappers being fed automatically through the gluing mechanism, which applies a thin, uniform coating of adhesive. As the wrapper is not moistened on the outside, delicate colors and printing are not affected.

The glued wrapper then meets the unwrapped package, and the machine wraps and seals the package accurately and neatly. The finished package is discharged on a traveling belt and may be immediately packed for shipment. It is not necessary to run the package through a drier, as it is sufficiently dry when it leaves the machine.

A conveyor is arranged to carry the unwrapped package from the filling machine to the wrapping machine. The latter is compact and can be arranged with the filling machine so that a minimum of floor space is required.

The Stokes & Smith tight-wrapped package is declared to be especially suitable for flour, cereals, crackers, biscuits, dried fruits, and other food products, powdered soap and soap flakes, tobacco in all forms, and numerous other products whose original condition must be preserved until they are consumed.



Automatic Machine for tight-wrapped packages put out by the Stokes & Smith Company of Philadelphia.

European Trade in Condensed Milk

Trade Possibilities in France, Switzerland, the Netherlands, Austria and Other Continental Countries

IT is the opinion of a prominent French importer that the trade in condensed milk, which has been rapidly declining in the past year, will continue to fall off progressively and that in five years from now there will be no call whatever for American condensed milk in France, says Alfred P. Dennis, special representative of the U. S. Department of Commerce. This conclusion is not borne out by investigation.

Adverse influences are bearing heavily upon the entire business, but there is no reason why American trade in special brands can not be maintained and developed. The adverse factors referred to are of two classes. The first has to do with general considerations, such as the unfavorable exchange and reduced buying power, all of which apply not only to France, but to other important consuming countries.

A second class of trade difficulties is to be connected more particularly with France. This class includes (a) a low per capita consumption of milk, as the people are by habit wine drinkers and use little milk, even in their morning coffee; (b) a rapid restoration of live stock, with increasing supplies of fresh milk; (c) the market drag of surplus war stocks, of which a considerable amount was thrown on the market in bad condition; and (d) the French discriminative tariff, which confers an initial advantage upon competitors against American producers in the canned-milk market.

Offsetting these adverse factors may be mentioned certain favorable factors, such as superior American manufacturing technique, with production costs that enable producers to turn out better brands for the money. On the negative side is a growing recognition that the canned-milk business has been overdone in Europe. A reaction has already set in with marked curtailment, especially in Switzerland. Further, continental dairying tends to revert to normal conditions under which surplus milk is converted into butter and cheese. In brief, the continental dairy trade possesses a valuable goodwill asset in the cheese business, whereas in the condensed-milk industry it has yet to acquire a position of primacy. In Turkey, Greece, Austria, Germany, and Poland the sale of condensed milk is a question of finance rather than actual demand. In the case of France the restoration of the dairying industry does not necessarily imply that condensed milk will be supplanted by fresh milk. A broad demand may be built up and maintained in the case of

certain brands. No matter how plentiful fresh milk may be, there are always some people who distrust its purity and are willing to accept condensed milk as a satisfactory substitute.

Demand for American Tinned Milk During War

Before the war the United States exported but limited quantities of condensed milk to Europe. It was thought that America could not produce so cheaply as the European countries, and the European markets were hedged about for the most part by high import duties. With the outbreak of the war import duties yielded to food necessities. Coincidentally, the decrease in the native herds, accompanied by the increased demand for portable food for the use of armies in the field, gave impetus to a strong buying movement.

At first the demand for American milk was concentrated on sweetened milk, owing to the prevailing sugar shortage. The first contracts for American unsweetened tinned milk were not given until the latter part of the year 1916. The business increased steadily, unsweetened milk tending to overtake the sweetened brands until at present unsweetened milk imports are about 75 per cent of the total. Trade volume attained such proportions that 800,000 cases of war stocks remained to be disposed of in France alone at the conclusion of hostilities. Naturally, these heavy stocks have affected the market in the past 18 months, but at present they are nearing exhaustion. There may be 35,000 to 50,000 cases left, but the amount is no longer sufficient to prove a determinative influence in the market. With the rapid restoration of French herds to something like the pre-war status, import necessities are obviously declining. Much of the ground, however, that was lost in the past 12 months may be regained by the right sort of trade campaigning. In brief, a trade in special brands may be built up through advertising and aggressive salesmanship. Safety and purity are the qualities that should be emphasized in a campaign of this sort. To a greater degree than ever before people are demanding that the milk used for human consumption be sterilized in some way. Leading hotels in the principal urban centers of France boil all milk before it is offered to guests for consumption.

Competition Offered by European Brands

There is only one important canned-milk factory in France, and it is not likely that this country will become an

important producer in the near future. The French prefer to devote surplus fresh milk to cheese and butter making. In Switzerland, where the canned-milk industry of Europe may be said to have originated, the trade has passed through many changes in the past seven years. Business has clearly been overdone, and, with the sharp reaction in demand, accompanied by falling prices, the whole tendency now is toward curtailment. Swiss competition in the next few years will manifest itself on the side of quality rather than quantity. A certain brand of Swiss milk is being liberally advertised at present in the United Kingdom as the best canned milk produced in the world. The major premise of the argument is the statement that the Swiss cows produce the richest milk and that the manufacturers, using the best raw material and employing the best methods, produce a brand that excels all others. This particular Swiss firm claims that its milk contains 27½ per cent more cream (butter fat) than one leading American brand and 31½ per cent more than another. Standard American brands contain butter fats to the amount of, say 8 per cent, whereas the Swiss brands run as high as 10 to 12½ per cent. The American manufacturer could easily increase the percentage of butter fat in his product, but the price would have to be raised accordingly. The object of the American manufacturer is to produce a milk adapted not only to the popular taste but to the popular purse. The past market verdict would seem to confirm the view of the American producer that low price, rather than richness in quality, is the thing desired by the European trade.

During the war the Dutch developed their canned-milk industry tremendously. They stuck, however, to the old line of sweetened milk, and there is only one factory in the Netherlands now that specializes in the unsweetened brand. The Dutch butter-fat standard for condensed milk is slightly higher than the American, although at present some special business is being done in a low-grade canned milk prepared from skimmed milk. This product is used largely by British coal miners.

Denmark, a great dairy country, entered the condensed-milk industry rather late and is but a slight competitive influence in western Europe outside of England, where a considerable trade is done. This trade tends to follow the Danish export butter trade. It is a rather curious fact that the Danes

export their butter and eat its cheaper substitute, margarin. In like manner a fine quality of condensed milk is exported from Denmark to England, and the skimmed milk, out of which inferior brands might be manufactured, is consumed at home.

Growth of American Industry— European Market

Before the war the American condensed-milk industry contented itself with supplying domestic needs. These domestic requirements ran slightly under 20,000,000 cases a year. In the boom period culminating in 1919, about 39,000,000 cases were produced, or nearly 100 per cent more than was needed for domestic consumption. This surplus represented nearly 75 per cent of the world's consumption of canned milk in 1914. In 1920 the United States production dropped to less than 25,000,000 cases. It is interesting to observe that whereas the United States attained peak production in 1919, continental Europe reached its highest production point only in 1921. A swift reaction has now set in, with evidences of marked curtailment. One may not reasonably anticipate a return to the small pre-war production, but the drift just now is plainly toward the resumption of cheese and butter making at the expense of the newly developed canned-milk industry. Even Italy, which can not be rated as a dairy country, has produced some canned milk in the past two or three years. Italian canned milk has been offered within the past 30 days on the Paris market, but at prices considerably above American brands of equal quality. Spain has been buying large quantities of tinned milk through its former source of supply, the Netherlands.

There is no country in Europe in which more condensed milk could be used now than Germany. The reduced herds and the scarcity of fodder, due to last season's prolonged drought, combine to produce a severe shortage in the supplies of fresh milk. Trade with the United States is affected by the difficulty of financing imports. The same demand, only more acute, exists for condensed milk in Austria and Poland, with the difficulties of finance more involved. It is learned that condensed milk is much wanted in Greece, that market being at present supplied by a well-known European house that has recently established factories in the United States. There is a strong demand in Constantinople and Asia Minor, but satisfaction of this demand awaits, as in the case of central Europe, sound measures of finance.

French Imports of Condensed Milk

French imports of sweetened and unsweetened condensed milk (given in metric tons), also the principal sources of supply, during the years 1913, 1920, and 1921 are shown in the accompanying table.

American trade in condensed milk, stimulated in 1919 to nearly 100 per cent production above home consump-

Countries of origin	—Unsweetened milk—			—Sweetened milk—		
	1913 Tons.	1920 Tons.	1921 Tons.	1913 Tons.	1920 Tons.	1921 Tons.
Total	203	31,143	10,523	1,286	6,758	5,879
Switzerland	119	89	397	1,217	2,848	2,953
Netherlands	48	411	1,205	.....	385	1,369
Germany	11	.....	.....	.....	.....	.....
Great Britain	7	417	.....	58	.....	.....
Belgium	5	951	.....	.....	450	.....
Canada .....	...	1,359	.....	.....	235	762
United States .....	...	27,871	8,130	.....	2,614	426
Other countries	13	45	791	11	226	369

tion requirements, must continue the policy of curtailment unless home demand can be increased and at the same time the swift decline in continental buying arrested. In respect to the European trade American manufacturers occupy a position of both weakness and strength. The weakness is due to increased continental competition, tariff barriers, and a reduced purchasing power through the general impoverishment of European countries. On the other hand, the call for cheaper food invests American brands with a more popular appeal than the more expensive European makes. Further, the progressive appreciation of the currencies of both France and Great Britain is a favorable factor in its bearing upon the American tinned-milk trade. The day has passed when the American manufacturers can hope to sell in round lots on general consignment to European markets. This does not necessarily mean, however, that they can do no business in Europe. It rather means that they can rebuild business on the more stable foundation of popularizing certain American brands. The one thing needed in Europe today is cheap, pure, portable foods—foods that can be used for children and for sick and undernourished people.

The Situation in Austria

The supply of fresh milk in Vienna is now only 108,000 liters (29,000 gallons) daily, whereas before the war it was about 900,000 liters (238,000 gallons), says Consul Carol H. Foster, of Vienna. The Austrian provinces can not supply the need, as they are hampered by a law that fresh milk must be sold at 168 Austrian crowns per liter (about 4 cents a quart), which is much less than the cost of production. This causes the Austrian producer to make butter and feed the skimmed milk to the hogs, rather than sell the fresh milk. There is a shortage of fodder, and facilities for milk transportation are limited and expensive, whereas butter and pork can easily be transported and disposed of in ways not subject to state control. Moreover, as a natural result of the war, Austrian herds are small and in poor condition. As an adequate supply of fresh milk can not be obtained, the consumer must turn to imported preserved milk.

Imports of preserved milk into Austria in 1920 amounted to 11,500 metric tons, of which 1,000 tons came from Italy, 1,500 from the Netherlands, 3,100 from Switzerland, and 5,000 tons from the United States. Official statis-

tics for 1921 are available for only the first half of the year. During this period the imports were 8,900 metric tons, 3,300 tons being supplied by the Netherlands, 1,500 by Switzerland, 1,000 by the United States, and 700 tons by France. The purchases during the second half of the year are said to be considerably smaller than those for the first half.

The chief difficulties affecting the sale of American canned milk in Austria are the questions of credit, exchange, and delivery. These hindrances to trade can be overcome only by the establishment of large transit stocks in the capitals of all the Austrian Provinces.

Canned Milk Trade in the Netherlands

Consul General George E. Anderson, Rotterdam, wrote as follows, concerning the situation in the Netherlands:

It is rather significant that as the export market for Dutch butter and cheese becomes more restricted and the domestic market is invaded by Danish and Australian butter, the export of condensed milk, milk powder, and other milk products has been greatly increased. The total volume of these exports in 1921 was 96,652 metric tons, with a value of \$20,005,000, as compared with 73,016 tons, valued at \$16,252,000, in 1920.

Exports of fresh skimmed milk in 1921 were 5,000 metric tons, valued at \$91,000, as compared with no shipments in 1920; and of fresh full milk, 11,000 tons, value \$476,000, against 14,000 tons, value \$596,000, in 1920. Germany takes practically all of the fresh milk shipped from this country.

There were 23,000 metric tons of sweetened condensed full milk, valued at \$6,478,000, shipped from the Netherlands during the past year, as compared with 17,000 tons, valued at \$5,025,000 in 1920. The principal purchaser in 1921 was Great Britain, with 11,000 tons, valued at \$3,082,000. In the previous year Germany was the chief buyer, with 6,000 tons, valued at \$1,668,000, followed closely by the Dutch East Indies, with nearly 4,000 tons, value \$1,173,000, and Great Britain, with above 3,000 tons, value \$1,007,000.

Sweetened condensed skimmed milk to the amount of 51,000 tons, valued at \$10,531,000, was shipped in 1921, as against 35,000 tons, valued at \$8,573,000, in 1920. Great Britain took the greater part of these shipments in both years, with 47,000 tons, valued at \$9,807,000, in 1921, and 29,000 tons, value \$7,061,000, in the previous year.

NEWS OF THE FOOD TRADES

Small Reductions in Wages by Packers

Present Rates Are Only Slightly Below the Peak Reached in 1920

Results of a study of hours, wage rates, earnings and working conditions in the slaughtering and meat-packing industry for the years 1917 and 1921 have just been made public by the Bureau of Labor Statistics of the United States Department of Labor. The 1921 figures are for thirty-four establishments and for 28,969 males and 3,448 females, representing approximately 35 per cent of the industry. Eighteen of the most important packing centers in thirteen States were covered.

The peak in the wage rates, as shown by the survey, was reached in 1920, followed in the winter of 1920-21 and spring of 1921 by reductions of 8 cents an hour in hourly rates and 12½ per cent in piece rates by twenty-six establishments, and of 10 per cent in hourly, piece and weekly rates by two establishments. Small reductions were made by three other establishments. Two establishments, up to May 1, 1921, had made no reduction in rates.

"The 1917 average rate of wages per hour of males for the industry for all establishments covered in the study," according to a statement yesterday from the bureau, "was \$0.272 and of females \$0.178. The 1920 average of males before any reductions had been made was \$0.58, and of females \$0.43. The average of males after the reductions was \$0.505 and of females \$0.362.

The Wages By Departments

"The 1917 average rate of wages per hour of males by departments ranged from \$0.236 in the canning department to \$0.313 in the cattle killing department, and of females ranged from \$0.15 in the hog killing department to \$0.217 in cutting or fresh pork department. The 1920 averages or the peak in the wage rate of males ranged from \$0.53 in lard and oleo department to \$0.642 in maintenance and repair, and of females ranged from \$0.364 in cutting or fresh beef department to \$0.459 in cutting or fresh pork department. The average of males in 1921 after the reductions ranged from \$0.463 in cured meat to \$0.556 in sheep and calf killing department, and of females ranged from \$0.308 in cutting or fresh beef department to \$0.402 in cutting or fresh pork department.

"The 1917 average rate of wages per hour of males by occupation excluding employees of maintenance and repair ranged from \$0.155 for laborers in the lard and oleo department to \$0.702 for sheep and calf butchers in the sheep and calf killing department. The average for females ranged from \$0.14 for tripe scalders and cookers to \$0.232 for painters in the canning department.

"The 1920 average rates of wages per hour of males by occupation before the reduction ranged from \$0.41 for cap setters in the canning department to \$1.422 for sheep and calf butchers in the sheep and calf killing department. The average rate

of females ranged from \$0.25 for truckers in the cured meat department to \$0.43 for truckers in the casing department.

Basic 8-Hour Day the Rule

"The 1921 average rate of wages per hour of males by occupation after the reduction ranged from \$0.33 for cap setters in the canning department to \$1.396 for sheep and calf butchers in the sheep killing department. The average of females ranged from \$0.25 for truckers in the cured meat department to \$0.45 for truckers in the canning department.

"In 1921 all the 34 establishments except three had the basic 8-hour day, with overtime at one and one-half times the regular rate and double the regular rate for work on Sunday and holidays. In 1921 all of the 34 establishments except seven guaranteed all employees 40 hours' pay per week. The seven paid for actual hours worked."

Large Exports of Corn Are Indicated for 1922

March exports of corn from the United States indicate that 1922 may possibly be a record-breaking year for the export of this commodity, says the National City Bank, New York. The March figures for shipments of corn to foreign markets show 22,000,000 bushels, compared with 13,000,000 bushels in March, 1921. Estimated on this basis the exports of corn for the current year may exceed those of the record breaking year of 1900, when shipments abroad were 213,000,000 bushels.

The report of the bank continues: "Whether prohibition has had anything to do with any efforts which the corn producers of the United States may have made to push their sales abroad cannot be determined, though it is a fact that the pre-prohibition use of corn in distilling and brewing ranged as high as 50,000,000 bushels a year. At least the rate at which the exports are now running, 22,000,000 bushels per month, is at a rate far in excess of the average exportation of the two high record years, 1898 and 1900."

German Asparagus Is Again Offered in United States

German canned asparagus is now being offered in the American market, the only evidence of any revival of the vegetable exports which Germany made to the United States prior to the war. Davies & Kahn, New York brokers, have been appointed representatives of the Konservenfabrik, Braunschweig, Germany, and have received samples of the 1922 pack of this company. This asparagus is labeled with the German name "spargel" and is put up in cylinder cans of ½ kilogram and one kilogram weights. Tips, soup asparagus and whole stalks are offered. Prices are quoted on a "mark" basis.

Sauerkraut to be Advertised by Kraut Packers Association

The National Kraut Packers Association, Fremont, Ohio, through the Conover-Mooney Company, Chicago, will shortly present an extensive advertising campaign, the basis of which will be the medicinal and remedial properties, claimed for sauerkraut by the packers.

Meats for Export are Near 1913 Prices

Average Pound Value in 1921 Was 14¾ Cents, While It Was 30½ at End of War

The average value per pound of all meat and meat products exported during 1921 was 14¾ cents, as compared with approximately 30½ cents in 1919, the peak year, according to a statement issued by the Institute of American Meat Packers.

"The average value per pound of meat exported during the month of February, 1922, the latest date for which complete figures are available," says the institute, "was only slightly above the value per pound of meat exported during February, 1913."

The quantity, value and average value per pound of meat exports for the various years since 1913 are shown in the following table:

Year	Quantity (Pounds)	Av. Price Value Per Lb.
1913.....	1,302,833,615	\$152,865,924 .1173
1918.....	3,159,116,126	829,660,905 .2626
1919.....	3,242,603,537	985,011,330 .3038
1920.....	1,883,389,053	449,015,777 .2384
1921.....	1,945,660,210	287,070,966 .1475

The export figures, it is explained, cover fresh, pickled and cured meats of all kinds, animal fats, sausage and sausage casings.

"Many of the pork cuts exported are unfinished," says the statement. "That is, they have not been smoked and otherwise fully prepared for the consumers' use. On these cuts the curing process is completed abroad.

"With allowance for such considerations, the value of meat exports per pound is in line with average wholesale prices prevailing here."

Royal Baking Powder Had Record Sale in 1921

In a statement addressed to the grocery trade, F. D. Bristley, vice-president of the Royal Baking Powder Company says that the sale and consumption of Royal Baking powder during 1921 exceeded the record made in any preceding year in the history of the company.

In telling of the world-wide sale of Royal Baking Powder the statement says:

"Royal Baking Powder was used by the Peary Expedition to the North Pole, and by the Scott expedition to the South Pole. Its empty tins have been found in the interior of Africa, on the slopes of the Andes, in the prospectors' camps of Alaska and on the desert of the Sahara."

Merger of Meat Packers Denied

J. Ogden Armour, Armour & Company, has authorized The American Food Journal to say that the rumored consolidation of the Cudahy Packing Company, Wilson & Company and Armour & Company is without foundation, insofar as Armour & Company or Mr. Armour are concerned and in addition he states that he has no information indicative of such a merger.

Objections to Tariff by Food Importers

Protests Will be Filed at Washington Against Rates Declared to be Unfair

Food importers generally are opposed strongly to the Fordney tariff and considerable opposition is being voiced by domestic producers to various provisions of the tariff. There is some criticism of California by many of those objecting to the tariff, who claim that the Ways and Means Committee has played politics by favoring California products in the bill. It is pointed out by these objectors that impossible restrictions have been placed upon the importation of foreign goods in markets where California cannot possibly provide the entire supply.

In the recently presented brief of the Dried Fruit Association, it was pointed out that the recently increased demand for nuts far exceeds California's capacity and that prices of both domestic and imported nuts have rapidly advanced under the present specific duty of 4 cents a pound. Despite the fact that it has been demonstrated that there is a need for nuts from abroad as well as those produced in the United States, the Dried Fruit Association points out that the tariff on whole-nuts has been advanced to 5 cents a pound for a majority of varieties and on shelled-nutmeat the rate is up 12 cents on walnuts and 15 cents on almonds.

It is argued that there was no need for further protection on either walnuts or almonds and that there is no adequate reason for advancing the price of nutmeats. After a long effort it has been possible to increase the use of nuts in the pastry and confectionary trades, but the new tariff means an increase in the price of nuts to these trades of from 8 cents to 11 cents a pound.

"It will advance shelled nuts to the consumer not far from 20 cents a pound and without any reason," according to Lou B. Parsons, Seeman Brothers, New York, formerly president of the Dried Fruit Association.

The green fruit importers point out that under the old tariff foreign vegetables rarely came in extensively, except when there was a real scarcity in the domestic supply and prices went up to a point where profitable importation was possible. It is argued that the Valencia onion saved the market this year. Under the old tariff the rate was 30 cents a bushel and under the emergency measure 40 cents, but the proposed rate is 50 cents, which would probably shut out completely products which never come into the country until they are really needed.

The proposed change of the tariff from a specific to an ad valorem basis is also meeting objection. As an example, it is pointed out that the present duty on mushrooms, in which the American industry is extremely small, is 2½ cents a pound. On present values this would amount to about 10 cents. If the Fordney tariff were changed to ad valorem, however, the rate would jump to about 55 per cent. Fish in brine, which are now on the free-list under the Fordney tariff, would pay a duty of 60 per cent, adding about \$3.50 a barrel to the imported product.

The olive importers are also dissatisfied. The old tariff on olives was 15 cents a gal-

lon, the emergency tariff 25 cents and the proposed tariff is 30 cents a gallon on stuffed and 20 cents on whole olives.

A brief on olive oil was recently presented by the Olive Oil Association of America, favoring a 2 cents differential between bulk and container oil. The present tariff provides a rate of 40 cents a gallon on bulk oil and 50 cents on oil in containers. The importers of olive oil generally favored a 30 cents a gallon rate on bulk oil and 50 cents a gallon on oil in containers.

Charles H. Bentley of the California Packing Corporation, San Francisco, says that while the canning industry and others require foreign markets, the tariff imposed upon American goods by foreign countries should be taken into account in fixing rates in the new tariff bill. He points out that section 302 of the bill should be broadened to prevent foreign merchandise being admitted into the United States on a lower rate of duty than respective countries of origin charge on products of similar character when shipped to them from this country.

Green Olive Importers Engage in Advertising

Although the United States is today a consumer of about 90 per cent of the green olive production of the world, the American Importers of Spanish Olives have entered into an advertising campaign to extend the use of green olives. The average imports of Spanish green olives is 3,337,954 gallons a year, which reduced to per capita consumption is only about 12 olives a year for each individual.

The advertising is so presented as to be valuable to all importers of Spanish olives, but it is being paid for by ten companies. They are La Manna, Azema & Farman, Aguibau & Ramee, Inc., R. C. Williams & Company, E. Sanchez & Company and the Falcon Packing Company, Inc., all in New York, Mawer-Gulden-Annis, Inc., and Van Dyke & Reeves, Inc., in Brooklyn, N. Y., Libby, McNeil & Libby, Chicago, and the William Edwards Company and the Weideman Company in Cleveland, Ohio.

The fund provided is sufficiently large to give jobbers and retailers a start for local advertising in their own sections of the country. It is provided by a tax paid by the curers of olives in Spain on every gallon shipped to the United States and another tax paid by the gallon by the importers.

Sears & Nichols Canning Company in Hands of Receiver

A receiver has been appointed for the Sears & Nichols Canning Company, Chillicothe, Ohio, with plants in 19 cities of the United States, on application of the Whitaker-Glessner Co., Wheeling, W. Va. President W. J. Sears in a statement said that heavy losses to wholesale grocers because of deflation in values, forced the company to carry large inventories, on which it in turn sustained a shrinkage in declining prices. Harry McGartney, vice-president and sales manager, of the company was named receiver.

E. S. Moorehead Becomes Sales Manager of Peach and Fig Growers

E. S. Moorehead, for the past year assistant sales manager and manager of special sales of the California Peach and Fig Growers, has been appointed sales manager of the company succeeding A. J. Sturtevant, Jr., who is retiring to take charge of his orchard interests. Mr. Moorehead was one of the organizers of the California Olive Association.

Macaroni Makers Form Promotion Bureau

To Undertake Educational Campaign Among Housewives to Bring About Increased Use

As a result of a series of meetings held in Chicago by some of the leading macaroni manufacturers, a plan for the organization of an association of package macaroni manufacturers has been agreed upon. This movement has the support of the leaders of the industry, who realize the necessity of a concerted and consistent educational campaign that will bring about an increase in the use of macaroni products, particularly among the American housewives.

At a preliminary meeting held in that city in December, various plans were submitted, all of which had some very good features. In order that they might be given full consideration, a special committee was appointed with Lloyd M. Skinner of the Skinner Manufacturing Company, Omaha, Neb., as chairman to study the various plans and to recommend at a subsequent meeting, something on which most could agree. The committee did some extensive research work, studying with particular interest the activities of other manufacturing and selling groups and at a meeting held at Hotel LaSalle, Chicago, on March 9, an attractive proposition was recommended and without a great deal of discussion unanimously adopted.

The organization work has rapidly progressed and at a meeting held in Chicago, April 28, by-laws were unanimously adopted, officers elected and application will immediately be made for a charter for the American Package Macaroni Association, Incorporated (not for profit) to the Secretary of State of Illinois.

Officers for the current year were elected as follows: President, Lloyd M. Skinner, Skinner Manufacturing Company, Omaha, Neb.; vice-president, L. J. Tujague, Tujague Food Products Company, Inc., New Orleans; treasurer, John L. Fortune, Fortune Products Company, Chicago; secretary and manager, C. F. Keene.

The board of directors consists of the above officers and John G. Elbs, Woodcock Macaroni Company, Rochester, N. Y.; H. E. Gooch, Gooch Food Products Company, Lincoln, Neb.; F. W. Foulds, Foulds Milling Company, Chicago; B. F. Heustis, Huron Milling Company, Harbor Beach, Mich.

The executive committee consists of F. W. Foulds, chairman, John L. Fortune, and John G. Elbs.

While it is agreed that there is urgent need for educational work and advertising that will bring about a consumption of these products, many times in excess of present use, the immediate promotional program will be limited to an educational campaign direct to the housewife, the wholesaler and retailer. Later a national campaign of advertising through recognized mediums will be instituted.

U. S. Food Products Corporation Applies for Bankruptcy

The U. S. Food Products Corporation, 25 Broadway, New York, has filed schedules in bankruptcy, listing its liabilities at \$36,996,830, including liabilities of subsidiary companies and assets of \$57,842,896.

Staple as Gold



ROYAL BAKING POWDER is made from pure cream of tartar, which is derived from grapes. It perfectly leavens the food, making it appetizing, delicious and healthful, and its superiority in all the qualities that make the perfect baking powder is never questioned.

*Royal Contains No Alum —
Leaves No Bitter Taste*

Royal Baking Powder Company, New York

American Lard is Supreme in France

Our Exports to That Country Normally Four or Five Times All Other Countries

In the lard trade, the position of the United States in the French market has been one of undisputed primacy for years, says a recent report of the Bureau of Foreign and Domestic Commerce. In 1913 American shipments to France were more than 4,000 tons and in 1919 they attained the impressive figure of 37,600 tons. In 1920, however, the trade declined to 25,400 tons. Despite adverse trade conditions all over the world in 1921, the United States sold 21,600 tons of lard in France during the year. In brief, American trade in lard with France is normally four or five times as large as that of all other countries combined.

Figures may be given for one other principal item in the hog-products trade: that is, sausage. Even before the war the United States held first rank as an exporter of sausage to France, furnishing a little more than one-third of all the sausage imported into the country in 1913. In 1920 France imported from the United States nearly seven times the amount taken from all other countries, and in 1921 nearly three times as much as from other sources.

French sausage shares the advantages and disadvantages of fresh meat. It is highly esteemed when fresh, but it has poor keeping qualities. American sausage, made from chilled meat scientifically treated, with the processes of manufacture carried to a high degree of perfection, keeps throughout the year and sells in France in competition with the famous Arles sausage. The kind most in favor is the large sausage from 12 to 18 inches long, made of pork meat with a small admixture of beef and put up in hog casings.

Oleo Stocks

Beef and other fats are extensively employed as stock by the French margarin and soap manufacturers. There is no duty on this class of imports. American oleo stock is preferred to South American, as it is the product of corn rather than grass-fed cattle. The important tallow business connected with the French soap trade has its center at Marseille. The French margarin makers are complaining of Dutch competition, although they are protected by a general duty of 35 francs per 100 kilos (\$3.07 per 100 pounds). Cheap butter has hurt both the lard and margarin trade. The prevailing low price of butter is to be connected with the recovery of the French live-stock industry and the unloading on the French market of huge Government stocks of British colonial butter.

The position of the American hog-products trade with France may be summarized by stating that the sales of fat-backs, bellies, hams, and picnics is falling away as a result of high tariff, adverse exchange, and abundant supplies of native fresh meat. The sausage business is on a better foundation. American sausage is well liked and during five months of the year is not subject to severe competition from the domestic article. Lard is the principal article in the United States hog-products trade with France, as with Germany, and will likely remain so. It is an almost indispensable item in French house-

holds and has little to fear from either domestic or Continental competition.

Ward Baking Company Markets \$5 Cake Successfully

The Ward Baking Company's advertising campaign to sell a high grade fruit cake at \$5 has met with unusual success. When the company first put its Paradise fruit cake on the market it was foreseen that difficulty would be encountered in selling a cake at this price. An advertising campaign was instituted, and this coupled with the Ward Baking Company's facilities for distribution aided materially in making this cake popular with the public. The greatest success was attained in advertising it as a Christmas gift.

The first real selling test came in 1920, when more than 100,000 cakes were sold, the presenting of the cake as a gift, evidently appealing to the public. In 1921 the sales mounted even higher. While the cake as a gift was the principal argument, there was also advertising which urged that the fruit cake should be replaced on the holiday bill-of-fare, from which it has been gradually dropped in the past few years of buying most foods ready instead of preparing them at home.

The price of the cake was prominently displayed in the advertising and every effort was made by the company to make easy the purchase of the cake as a gift, the suggestion even being made that the purchaser send his Christmas list to them or to the nearest bakery handling Paradise Fruit Cake.

1921 Beet-Sugar Production, 1,020,489 Tons

The production of beet sugar in 1921 amounted to 1,020,489 tons of 2,000 pounds each, according to the final report of the U. S. Department of Agriculture. This amount was 68,532 short tons below the record-breaking production in 1920, which was the first to pass the million-ton mark. The 1921 sugar-beet crop grew on 814,988 acres, an area 56,688 acres less than the acreage harvested in 1920. These figures are the result of actual enumeration and are not estimates.

Coffee Companies Are Cleared

The Federal Trade Commission has dismissed because of failure of proof of interstate commerce formal complaints issued against the following coffee concerns: Wood & Co., Inc., Tacoma, Wash.; Commercial Importing Co., Inc., Seattle, Wash.; D. Davies & Company, Seattle, Wash.; Matthews & Kerr, Inc., Spokane, Wash.; Defiance Tea & Coffee Company, Inc., Portland, Ore.; Martin Marks Coffee Company, Portland, Ore. These cases involved the practice of leasing coffee urns to restaurants and cafes upon the condition that the lessee buys its coffee exclusively from the lessor.

A one-line combination clam and salmon cannery has been built at Hoquiam, Wash., by the Pacific Sea Food Company, which was organized early this year. The plant has a capacity estimated at 6,000 cases of minced clams and 10,000 cases of salmon. About 50 men will be employed.

J. M. Hancock, formerly vice-president of the Jewel Tea Company, Chicago, has been elected president, succeeding R. E. Durham. At the annual meeting of the stockholders J. M. Hancock, F. F. P. Ross and H. F. Lindley were elected to the board of directors.

Olive Oil Fakers Flood the Market

Health Department has Conducted 25 Prosecutions in the Last Few Months

After considering a report by Ole Salthe, Director of the Bureau of Food and Drugs of the New York City Department of Health and the attempt to purge the olive oil market of adulteration, Commissioner of Health Dr. Royal S. Copeland of New York made the assertion that the boot-legger had nothing on the adulterator of olive oil in the way of profits. Peanut and cottonseed oils are used and detection is difficult, Mr. Salthe said, because the original label is seldom disturbed and the purchaser cannot detect that the package has been tampered with.

The Department of Health of New York City has conducted about twenty-five prosecutions in the last few months, and most of these are still pending in the courts. In this work it has had the active assistance of exporters who are suffering from the bad practices of a few dealers. It has been discovered that not satisfied with misbranding as "Pure Olive Oil" mixtures of genuine olive oil and cottonseed oil, the practice has grown up of buying empty barrels and cans of well-known brands whose original contents were sealed in Spain.

It was said that fraudulent jobbers were doing business under half a dozen different names, sending salesmen out to offer their goods below the market prices. According to dealers, it was practically impossible for any legitimate concern to sell any pure olive oil in the New York market at a price whereby it could recover its investment on the sale.

It was this underselling of the market that started the campaign of the importers and the Department of Health. It was only by the continued taking of samples and analyzing them that the officials got on the trails that led to subsequent court actions. Inspectors found in one place a lot of adulterated oil and also equipment for opening sealed packages and a crew of six men at work. Mr. Salthe said that 17 per cent of the samples taken last year were adulterated.

"The temptation to substitute inferior oils is founded on the fact that cottonseed and peanut oils can be purchased for from \$1 to \$1.25 a gallon, while olive oil costs more than \$3 a gallon," said Commissioner Copeland.

Order to Desist Issued in East St. Louis Stock Yards Case

The Secretary of Agriculture has issued his first final order under the Packers and Stockyards Act. It is directed against the St. Louis Live Stock Exchange and the principal order buyers, dealers and traders at the East St. Louis National Stockyards, about 110 in all, and orders them to cease and desist from the practice of refusing to do business with the four commission companies at that market which are not members of the exchange.

It was charged in the Secretary's complaint that the respondents had combined to put into effect a practical boycott against the independent commission companies and that their acts constitute a restraint of trade in violation of the Packers and Stockyards Act.

Food Manufacturers
are invited to
avail themselves of the
broadened facilities of the
Food Service Bureau
of

THE AMERICAN FOOD JOURNAL

WINIFRED STUART GIBBS

Director

A LETTER addressed to The American Food Journal will bring you a constructive reply showing how The Food Service Bureau can cooperate with existing departments of your company or in developing new departments for handling specific work. Among other things the Bureau can furnish any of the following services:

Publicity backed by a thorough scientific knowledge of the nutritional value of your particular product, informing the public of the place of that product in a well-rounded dietary.

Leaflets and Pamphlets indicating recipes, combinations with other foods and scientific facts regarding your product.

Educational Campaigns of a broad-gauge character appealing to the housewife or to the professional food educator.

Exhibits and Lecture Courses exemplifying the uses of your product and its nutritional possibilities.

Scientific Investigations into the nutritive qualities of your product, with a view to exploiting the findings thereof in advertising and publicity.

Individual Bureaus in retail centers in charge of nurses or others prepared to give the public purchasers sound scientific information.

Obtaining Access to Institutions, such as hospitals and charitable organizations, which would quickly accept in large quantities foods of proven worth and recognized nutritional values.

Food Service Bureau of The American Food Journal

25 EAST 26th ST., NEW YORK CITY

Canners Adopt Uniform Sales Contract

At the recent convention of the Western Canners' Association in Chicago, a uniform contract, substantially the same as the form agreed upon by the National Wholesale Grocers' Association and the Canners' League of California, was adopted, in agreement with the National Wholesale Grocers' Association and the National Canners' Association. The following are the principal terms of the contract.

Terms.—F. o. b. shipping point; cash less 2 per cent if draft is paid within 24 hours, otherwise 1½ per cent if paid promptly upon arrival and inspection; draft not to be dated earlier than date of lading.

Conditions.—Seller reserves right to route, buyer to name terminating line.

Liabilities.—Seller agrees not to sell in excess of average production of his plantings, based on last five years average; his acreage shall not exceed capacity of his plants.

Swells and Spoils.—Swells and spoils shall be returned promptly and paid for by seller, or inspected by sellers' representative within ten days after notice.

Delivery.—Seller unable to make full delivery because of causes beyond his control, including crop damage, shall pro-rate remaining stocks. In case of less than 100 per cent delivery buyer may require seller to produce certificate from Western Canners' Association in justifications. If delivery is not so justified the canners' association shall assess damages and seller agrees to pay. Buyer can cancel if place of business is destroyed by fire. * * * The California contract calls for investigation by the canners' organization when the delivery has been 25 per cent under contract. The Western canners agree to investigate where the matter cannot be settled by individual buyer and seller under 100 per cent. But in this connection the following from the Canners' League of California is pertinent: "Neither in wording nor intent does our contract give the canner authority to reduce his delivery to 75 per cent, whether conditions do or do not justify. His obligation to deliver 100 per cent if nature will permit him to do so is just as great as his obligation to deliver 75 per cent. This is fully understood by our members."

Arbitration.—Provided for in usual way.

Five-Cent Raisin Package a Successful Seller

Marketing of seedless raisins in five-cent packages, which was inaugurated in the spring of 1921 by the California Associated Raisin Company, has been successful in the highest degree. The "Sun-Maid" package of the company with its slogan, "Have you had your iron today?" has become so popular throughout the United States that from September 1 to October 1, 1921, orders for more than 300,000,000 of this five-cent packages were placed. Before the end of October it was reported by the company that the quantity of raisins sold in this form had reached 11,000 tons. It is predicted by the California Associated Raisin Company that the total sales of raisins in five-cent packages will be about 60,000 tons this year.

Within a few weeks after the first carload of raisins packed in this form was offered to the trade, suitable stock from the 1921 crop was exhausted. Important as this method of selling may be, the household and bakery demand still moves

the majority of the raisin crop. In the five years prior to the organization of the California Associated Raisin Company and its intensive advertising, the raisin crop was about 70,000 tons. Today, the planted acreage will produce in excess of 200,000 tons, and it is confidently estimated that in ten years the California raisin crop will total 400,000 tons.

Cheese Marketing Campaign Declared a Success

The Wisconsin Cheese Producers Federation, which is an organization of producers, formed to aid in the marketing of cheese, has successfully developed a heavy demand in the Milwaukee market for the best quality of cheese produced by the Wisconsin manufacturers. Setting aside all the best grade and quality of cheese produced by its members the federation placed it on the market under the trade name of "Mello-Creme" cheese, at the same time carrying on an extensive advertising campaign. There was some objection raised by competitors, who pointed out that this cheese was well-ripened and aged and that the public would not take to it as readily as to the average fresh, green cheese. The demand that has developed, however, has seemingly justified the efforts of the federation.

Shortage of Dried Fruits Expected in United Kingdom

A shortage of dried fruits in the United Kingdom, together with the rise in exchange and the drop in freight rates, should stiffen prices until the new crop reaches the English market in October, according to a report to the Department of Commerce from Vice Consul Howard Donovan at London. Sales of California raisins would be larger if they arrived in time for the Christmas trade and if they were packed, like the Spanish product, in seven-pound tins, faced and scalded, giving them the golden-brown color which attracts buyers. Smyrna sultanas, offered at lower prices than California seedless raisins, are furnishing competition difficult to meet. The amount of dried currants and raisins entered for consumption was appreciably larger in 1921 than in the previous year. Stocks of California and Oregon plums and prunes, and of dried apricots, pears and peaches in London bonded warehouses at the end of the year considerably exceeded those of 1919 and 1920.

The oranges, mandarins and bananas seen in the best shops of France are not of a quality to attract the notice of an American tourist, writes Vice Consul J. Lee Murphy from Nantes. Grapefruit is practically unknown. If American shippers can meet the market with the adverse exchange rate and the long-haul freight charges they may be able to do some business on a consignment basis with regular buyers.

During 1921 the United States furnished practically all the imports of dried apples and pears into the Netherlands, the Department of Commerce is informed by Consul General George E. Anderson, Rotterdam, who says there is a steady demand for these products. American exporters also sold 53 per cent of the canned fruit and 25 per cent of the preserved fruit purchased by the Netherlands last year. The fall in value of the German mark in 1921 enabled Hamburg jobbers to sell American dried prunes and apricots in the Dutch market at prices lower than those obtaining in the United States.

Campaign to Introduce Pectin Is Successful

Somewhat novel methods were employed by the Pectin Sales Co., Rochester, N. Y., when, about one year ago, that company began a selling campaign on its product "Certo." The preparation, which has pectin as a basis, when added to fruit being boiled, produces jelly of a good quality. Formerly the Pectin company confined its distribution to large lots sold to manufacturers of jams and jellies, but in the spring of 1921, the campaign to sell to the wholesale and retail grocer was instituted. The first step in introducing this product to the public was confined to local selling in Rochester. Accompanied by a campaign of advertising in the newspapers of that city, salesmen were sent out to cover all grocers. These men were all equipped with a small portable stove and kettle, and if the grocer, either wholesaler or retailer, appeared doubtful of their statements, a demonstration was given immediately.

From local selling the company began to extend its efforts to other cities, following much the same tactics. Advertising in the newspapers was changed to meet the local conditions, advocating the use of the product in canning whatever fruit was in season in the locality being sold. Particular success was obtained by the advertising, which described its value when used in making jelly from canned and dried fruits, as these advertisements generally bore reproductions of the brands of various well-known canning companies, resulting in excellent co-operation. The company has now established distribution of its product from Boston to Chicago and is opening up Texas and other Southern states, east to Florida. The complete success of the methods employed by the Pectin company is shown in the sales figures for the opening campaign. In Rochester alone 200,000 bottles of the product were sold during the early part of the introductory period and in about three months in New York State (excepting New York City); and Pittsburgh 1,000,000 bottles had been sold.

H. J. Heinz Company Distributes Profit Scales to Grocers

A retail profit scale card is being distributed to retailers by the H. J. Heinz Company, Pittsburgh. The scale, which is of celluloid is a small envelope, in which is a card bearing the parallel columns, the various prices per dozen of canned goods, the relative selling price and the percentage of profit realized on cost and on return. By moving the insert either up or down, the four items are read through a slit at the top. On the outside of this scale the H. J. Heinz Company points out that the grocer makes money only when the goods are sold and that the amount of profit equals the percentage multiplied by the number of turnovers. These scales are being sent to merchants either from the local branches of the company or from the home office in Pittsburgh.

The Pompeian Packing Corporation, recently incorporated at San Diego, Cal., for \$200,000, is to carry on the business of canning, drying and preserving and handling fish. The incorporators were: Samuel E. Tromley, Frederick W. Stearns and John G. Buerkle, the latter formerly vice-president of the Pompeian Sea Food Company, which operated a canning plant at San Diego. This plant will be occupied by the new company.

57

A half century of popularity

Two years ago H. J. Heinz Company celebrated its fiftieth anniversary—the completion of fifty years of growth and development. During the trying time which has elapsed since that anniversary the company has continued its prosperous progress.

Fifty-two years of continued use have not dulled the appetite of the consuming public for these foods in which quality has always been the first consideration. That is why retailers still find that the 57 Varieties are in constant demand and that the rapid turnover brings a steady flow of profit and an increasing list of satisfied customers.

H. J. Heinz Company
57 Varieties

E. PRITCHARD

Packer and Manufacturer
of the Finest

"EDDYS"

BRAND

Canned Food, Jellies, Preserves
Plum Pudding, Sauces, Table Delicacies

and

PRIDE OF THE FARM
TOMATO CATSUP

Bridgeton, New Jersey

and

331 Spring Street, New York, N. Y.

The Standard

DIETITIANS, physicians, Home Economics Experts, and Domestic Science teachers, recommend and use

KNOX

SPARKLING
GELATINE

because its purity, quality and strength are unexcelled.

With Knox Sparkling Gelatine you can use your own pure flavoring, real fruit juices and known ingredients.

In the diet kitchen, in the domestic science laboratory and in the home as well, Knox Sparkling Gelatine is the recognized standard.

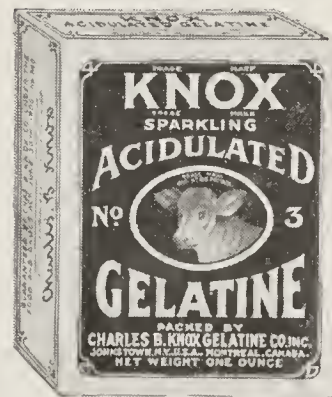
The Charles B. Knox Gelatine Co.

111 Knox Ave.

Johnstown, New York



↑
Plain for general use. The original unflavored, unsweetened package.



↑
The "Busy Housekeeper's" package. Contains Lemon Flavoring in separate envelope. No Lemons required.

Both packages contain the same Quality and Quantity of Sparkling Gelatine

Food Exposition in London to Attract U. S. Companies

American manufacturers of foodstuffs have been invited to install exhibits at the Nation's Food Exhibition to be held in London next September, according to a report from Commercial Attache Walter A. Tower to the Department of Commerce.

The exhibition, which will be open for three weeks, will include foodstuffs of all kinds, both raw and prepared, beverages, accessories connected with the preparation and distribution of foodstuffs, foodstuff machinery, refrigerating apparatus and cooking utensils. Cooking demonstrations will be given, also demonstrations of labor-saving devices for the dining-room and kitchen, and model factories will be shown.

Many foreign governments are planning to be represented, and some American firms have already reserved space for exhibits. Displays of California fruits of all kinds are especially desired. It is believed that such an exhibit would be the means of introducing the various brands of fruits into England, as samples could be sold or given away and the public offered an opportunity of estimating these products at their full value.

A copy of the prospectus issued by the promoters of the fair and application blanks, which give detailed information concerning the exhibition may be had upon application to the American representative, A. E. McKinnon, General Exposition Co., 405 Lexington Avenue, New York City.

Food Importers Elect Officers

The Associated Importers of Food Products held their annual meeting in the New York Mercantile Exchange Wednesday. The election resulted in the following officers: President, George O'Hara, La Manna, Agema & Farnam; first vice-president, H. Brunie, F. M. Leggett & Company; second vice-president, D. Valk, Falcon Packing Company; treasurer, H. Wegener, Menzel & Company; secretary, J. S. Neuman, Neuman & Schweirs Co. The directors are H. T. Asche, Von Bremen Asche, H. Brunie; David Ries, Cresca Company; R. U. Delapenha, R. U. Delapenha & Company; D. Valk; M. J. Meyer, M. J. & H. J. Meyer; H. Wegener, Menzel & Company; J. S. Neuman; Geo. O'Hara; Ingovar Tokstad, Tokstad Company, and W. Gumpertz, Seeman Bros.

California Growers May Ship Olives in Brine

With the California Olive Growers, organization of which is just being completed, in a position to take the necessary action, the olive growers of Tulare, Butte, Tehama and Los Angeles counties may be afforded considerable assistance in the marketing of their crops. The olive industry of California is said to be more in need of organization, standardization and co-operative marketing than any of the fruit industries of the state. Hundreds of tons of olives have rotted on the trees in the past fall and winter, chiefly because there was no adequate method of reaching the consumer. There are about 30,000 acres of bearing olive orchards in California that it has taken years to bring to productive maturity and it is believed that the organization of a state association will save the owners of these orchards from heavy losses.

To demonstrate the possibility of preserving ripe olives without loss of color or flavor, the Lindsay Ripe Olive Company of California in 1920 put down 800 barrels in salt brine in October and in October, 1921, these olives were processed and canned with the original color and flavor retained. They brought a good price in the market. It is believed from the results of this demonstration that ripe olives preserved in brine could be shipped by the barrel to the pickling factories of the East, which could cure and sell them direct to consumers at a much lower price than at present.

Recent Patents

The following patents of interest to readers of The American Food Journal recently were issued from the United States Patent Office. Copies thereof may be obtained from R. E. Burnham, patent and trade-mark attorney, Continental Trust Building, Washington, D. C., at the rate of 20 cents each. State number of patent and name of inventor when ordering:

1,410,345. Food product. Cecil O. Phillips, New York, assignor to American Cotton Oil Company, same place.

1,410,346. Treatment of cottonseed-meats. Cecil O. Phillips, New York, assignor to American Cotton Oil Company, same place.

1,410,809. Process for obtaining milk vinegar. Huberty P. Felicien, Alfort, France, assignor to Societe F. Huberty et Cie., same place.

1,410,920. Pectic substance and process of making the same. Frederick W. Huber, Riverside, Calif.

1,410,951. Machine for removing the skins from the kernels of nuts. George Park, Bayonne, N. J.

1,410,973. Malted food and process of producing the same. Robert Wahl, Evanston, Ill.

1,411,103. Method of aerating liquescent material and apparatus in aid thereof. John C. Hughes, Middletown, N. Y., assignor to Borden Company, New York.

1,411,192. Article of food. Michael Schenck, Chicago, assignor to Stein-Hall Manufacturing Co., same place.

1,411,203. Starch-conversion product. Robert E. Bright, Chicago, assignor to Stein-Hall Manufacturing Co., same place.

1,411,204. Method of preparing starch-conversion products. Robert E. Bright, Chicago, assignor to Stein-Hall Manufacturing Co., same place.

1,411,223. Art of making and packaging pastry. Edward J. Retzbach, St. Louis.

1,411,479. Process for preparing foods. William H. Cloud, Yakima, Wash.

1,411,528. Raisin-stemmer. Edward E. Stanley, Emmett, Idaho.

1,411,641. Flaked food product and process of producing the same. Nathan Mininberg, Dickinson, N. Dak., assignor to Bran Products Company, same place.

1,412,378. Process of making beverages. Jokichi Takamine, Jr., Clifton, N. J.

1,412,444. Machine for proving dough. Robert E. Baker, Bronxville, N. Y., Eardley H. Ford, Brooklyn, N. Y., and Arthur F. Cummins, Nutley, N. J., assignors to Joseph Baker Sons & Perkins Company, White Plains, N. Y.

1,412,523. Process for bleaching foods. Irving Hochstadter, Far Rockaway, N. Y.

1,413,092. Manufacture of milk fat. John C. Baker, Ridgefield Park, N. J.

1,413,386. Device for removing cocoanut-shells. Joseph Rohr and Harold Gilbert, Brooklyn, N. Y.

Canadian Cornflakes Company Wins Victory

Justice Middleton of Toronton, Ont., granted the Battle Creek Toasted Cornflake Company, Ltd., of London, Ontario, an injunction restraining the Kellogg Toasted Cornflake Company of Battle Creek, Mich.; the W. K. Kellogg Cereal Company, and W. K. Kellogg from manufacturing and selling cereal products in Ontario in competition with the plaintiff's product. They also restrained them from advertising cornflakes for sale in cartons and boxes similar to those of the Canadian company.

Justice Middleton held valid a sale for \$75,000 of the Canadian rights, made by Dr. John Harvey Kellogg, inventor, and his brother, W. K. Kellogg, producer of the Kellogg brand of cornflakes.

"They have stood by and suffered the Canadian company to establish a business," he said, "using and adopting the ever-changing cartons, following the American lead, adopting changes in the trade name and in the mode of manufacturing, and now they seek to destroy all this by coming into active competition with them in the market."

Time Extended for Stockyard Disposal

Extension of the time in which Swift & Company and Armour & Company must dispose of stockyard and railroad terminal properties has been made until March 3, 1923, by the District of Columbia Supreme Court. Attorneys for the companies informed the court that it had been impossible to complete transactions within the originally specified period. The date selected is the same as that granted to Morris & Company on a similar time extension.

Royal Baking Powder Company to Pay \$1,000,000 for New York Office

The Royal Baking Powder Company, William Ziegler, Jr., president, has leased through Alfred C. Marks from the Pershing Square Building Corporation the twentieth floor in the Pershing Square building now in course of erection on Park Avenue between Forty-first and Forty-second Streets, New York City, for 20 years at an aggregate rental exceeding \$1,000,000. The area of floor space is about 17,800 square feet, which will be occupied by the Royal and its subsidiary companies.

This will be the first removal of the Royal Baking Powder Company in more than 18 years. The company sold its building at Fulton and William Streets through the same broker two years ago.

Allied Packers, Inc., Buys Chicago Plant

Allied Packers, Inc., it was announced recently, has purchased the Western Packing & Provision Company of Chicago. The plant was taken over on May 1. Plans for additions to the plant are being considered. The Western Packing & Provision Company was organized about 17 years ago.

F. G. Pohndorff, export manager, Royal Baking Powder Company, has been elected vice-president in charge of foreign sales. Mr. Pohndorff has been connected with the Royal Baking Powder Company for the past 30 years, 20 of which were spent in Great Britain and other foreign countries.



Back to Nature!

Nature put into two foods—the whole wheat berry and milk—practically everything needed for normal human nutrition. These two great foods are now combined in a delicious new whole wheat loaf

WARD'S HOMESPUN BREAD

THE 100% WHOLE WHEAT LOAF

“Nothing Added—Nothing Taken Away”

WARD'S HOMESPUN BREAD is made from whole wheat flour *only*, specially milled from the highest grade No. 1 Northern Hard Spring Wheat. It is a loaf supreme in food-value and delicious in flavor—a real whole wheat bread, not just a name. A pound and a half of pure nourishment.

HOMESPUN is the result of four years of research work by the technical department of the Ward Baking Company in

the effort to produce an honest, perfect and palatable loaf of 100 per cent Whole Wheat Bread—an effort now crowned by complete success, as evidenced by the remarkable popularity of the new loaf.

“A noble loaf. . . . A more honest bread has never been baked. This is the public's opportunity to prove that it really wants bread perfection.”—ALFRED W. McCANN, in the *N. Y. Globe*.

WARD BAKING COMPANY

New York

Boston

Brooklyn

Providence

Newark

Pittsburgh

Chicago

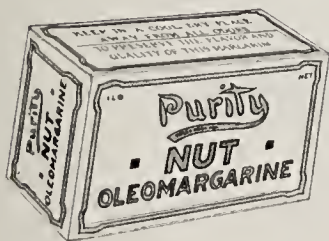
Columbus

Cleveland

Purity MARGARIN

Is Always Trustworthy

The pure vegetable fats prepared in our great factory and the sweet pasteurized fat-free milk from which we prepare Purity Nut Margarin are always kept up to our own high standard of purity.



And all through the “working” flavoring with crystal salt and packing in the protecting carton no hand touches Purity Nut Margarin.

THE CAPITAL CITY PRODUCTS CO.
Columbus, Ohio

Adding Zest to A Nation's Appetite

There is a Libby kitchen wherever the best in foods is to be found, whether it be fruits, meats, vegetables, or milk.

In Libby's famous Farm Kitchen at Blue Island, Illinois, a full line of condiments and relishes which add zest to the appetites of a nation, are packed—pickles, olives, mustard, catchup—each one measuring to the Libby standard of high quality.

Consider, for instance, LIBBY'S TOMATO CATCHUP—made from rich vine ripened tomatoes, carefully blended with choice spices, sugar and vinegar. No preservatives are used—just the fine tomato color and flavor, neither oversweetened nor over-spiced, adding just the needed piquancy to your foods.

Libby, McNeill & Libby
Chicago

Libby's

Co-Operative Advertising of Macaroni to be Considered

Co-operative advertising of macaroni products is being considered by many manufacturers of macaroni and may result in action by the National Macaroni Manufacturers' Association, which meets at its nineteenth annual convention in Niagara Falls, June 22 to 24.

One of the plans suggested by advocates of co-operative advertising for this industry, similar to that which has been done by the fruit growers, rice millers and cereal manufacturers, calls for use of store cards; trade journal advertising; and the use of pamphlets inserts and wrappers. It is pointed out in this plan that the retail dealer would look with more favor upon one or two artistic store cards than he does upon the numerous cards which he is now expected display for different companies and through the trade journal he could be educated in the value of macaroni as a producer of sales of other items such as tomatoes, cheese, sauces and crackers.

Georgia Canning Companies Form \$3,000,000 Merger

The Continental Packing Corporation, Macon, Ga., is the name under which six of the large canning plants at Macon recently merged with capital between \$3,000,000 and \$5,000,000. The American Cone & Pretzel Company at Franklinton, near Macon, will in the future be known under the name of the corporation. Other plants taken over by the new corporation are controlled by R. L. Dollings & Company, Columbus, O., and the Brooks Tomato Products Company, St. Louis, Mo. The plants are located at Long Branch, Fla., Macon, Ga., Collinsville, Ill., and Mt. Vernon, Shirley and Altamont, Ind.

The operations of the new corporation will be largely centralized at Macon and Collinsville, Ga., at the largest plants.

F. Schamotulski, for the past 25 years with Sears & Nichols Canning Company, will be in charge of processing in all the plants. The Franklinton plant is expected to open May 20 for the packing of beans. It is being equipped to pack pimento peppers, beans, tomatoes, spinach, peaches, sweet potatoes and beets. The company expects to pack about 125,000 cases of twenty-four cans each at the Franklinton plant this season.

Butler & Sergeant, Inc., Open Two New Offices

Butler & Sergeant, Inc., New York, food broker, has opened an office in Milwaukee, Wis., which will operate under the name of Sergeant & Nicholoy, Inc., and will be in charge of Winford E. Nicholoy, vice-president and manager. Mr. Nicholoy was formerly associated with the Meinrath Brokerage Company in the Milwaukee office, was connected with the United States Food Administration and was for several years with S. E. Comstock & Company, Newark, N. J. Butler & Sergeant, Inc., also announces the opening of an office in San Francisco, which will operate in conjunction with the New York, Cleveland, Philadelphia and Milwaukee offices.

J. B. Inderrieden & Co. Chicago, canners and dried fruit packers, have acquired a site on Erie Street, adjoining the location of Sprague, Warner & Company, upon which will be erected a building and warehouse to be completed in 1923.

Virginia Wholesale Grocers Organize Association

The first annual convention of the Virginia Wholesale Grocers' Association, which was organized last August, was held April 12 and 13, at the Hotel Roanoke, Roanoke, Va. The membership, which was thirty-nine, at the time the association was organized, was reported at 100. The convention was addressed by Senator Carter Glass of Virginia, who spoke on the "Federal Reserve System"; John B. Newman, assistant to the president of the National Wholesale Grocers' Association, speaking on "Co-operation"; and H. P. Strasbaugh, Aberdeen, Md., former president, National Canners' Association.

Officers elected for the coming year were: J. H. Carpenter, Covington, Va., president; C. W. Hulfish, Charlottesville, Va., and W. S. Aaron, Christiansburg, Va., vice-presidents; J. M. Thomas, Danville, Va., treasurer; and W. A. Powell, secretary.

Stable Market for Spices is Expected Shortly

Foreign markets are getting much firmer, primarily on account of the rate of exchange which has advanced materially in the last few months, states a letter to the trade from McCormick & Company, Baltimore, Md., importers, exporters and grinders of spices, teas and flavoring extracts. Many foreign goods have for months been sold for less than the cost of production and some of the markets are very bare of supplies because, as in this country when prices go below the cost of production the growers turn their attention to other goods. The same applies to spices, teas, vanilla beans, etc., some of which have already advanced in the last four months 25 to 100 per cent. A few goods are still too high, it is stated, and readjustments will continue for some weeks. A stable market will be reached shortly, McCormick & Company, believe.

New Cannery for Great Atlantic & Pacific Tea Company

The A. & P. Products Company, a recently organized subsidiary of the Great Atlantic & Pacific Tea Company, has acquired property at Nakat Inlet, Alaska, from the G. W. Hume Company. The property, which includes a cannery site with some small buildings and four trap sites, will be operated in conjunction with the plant at Hidden Inlet, previously purchased by this company. The cannery on the site, which was destroyed by fire last year, will not be rebuilt this year.

Corn Products Refining Company Forms German Subsidiary

The Corn Products Refining Company, New York, it has been announced, has formed a German corporation, with a capitalization equivalent to \$1,000,000 in American money, to operate three small plants which it owns in Germany. G. M. Moffet, George Mahana and J. W. Fisher, directors of the company are also on the directorate of the new company. Mr. Moffet has sailed for Germany to study the situation.

Pineapple Packers Change Their Association Name

The Hawaiian Pineapple Packers' Association changed the name of the organization to the Association of Hawaiian Pineapple Canners at the annual meeting March 7. A. H. Tarleton is executive secretary of the association.

Holland's Rice Milling Trade Returning to Prewar Basis

The great Dutch rice milling industry is once more returning to a pre-war basis, states a report received from the American consul at Rotterdam.

In the opinion of Dutch rice exporters both the trade and the milling industry will be much nearer a prewar basis during the present year than was anticipated a year ago. Rice is offered on the Dutch market from stocks in London, Liverpool, Leith, Antwerp, Dunkirk, Marseille, Havre, Hamburg and Glasgow, not to mention the large stocks that are received directly from the great producing centers of the Orient.

Although the amount of rice annually consumed in Holland does not exceed 176,368,000 pounds, the amount annually imported before the war averaged from 551,150,000 pounds to 804,679,000 pounds. This rice came from all over the world. Burmah was the principal source of supply for the cheaper grades which, when treated in Holland, were especially popular in central European countries. Rice from Siam was also handled to a considerable extent, and Indian and Java rice were imported for the finer trade.

American rice is imported only spasmodically. A large crop in the United States with low prices usually leads to a considerable movement of American rice to Holland, but usually Java rice of the same grades as American can be had for less money.

The fact that American rice has not been so popular on the Rotterdam market in the past does not mean that it will continue so in the future. The United States as a matter of fact, came into the Dutch market very successfully last year, when out of the total imports of 190,000,000 pounds, 69,191,000 pounds were supplied by the United States.

New York Wholesalers in New Canning Company

The Mexican-Pacific Canning Company, in which a number of prominent wholesale grocers of New York City are interested, has a capital stock of \$1,000,000, 8 per cent cumulative preferred, and \$4,000,000 of common, each of \$100 par. The company is understood to have acquired property rights on the west coast of Mexico and a concession from the Mexican Government permitting it to fish, can, and preserve fish and all sea products. U. H. Dudley & Company, of New York, Buffalo, Boston and Philadelphia, have been appointed sales agents for the products.

Contract Let for Heinz Spaghetti Factory

Contract for a large building devoted exclusively to the production of spaghetti was recently let by the H. J. Heinz Company, Pittsburgh. The present department which is devoted to the manufacture of spaghetti, macaroni and noodles, is thoroughly modern and sanitary, but additional space is needed. The H. J. Heinz Company produces 106,585 miles of spaghetti per year.

Pfaudler Company Moves New York Sales Office

The Pfaudler Company glass enameled steel products, Rochester, N. Y., has removed its New York office from the World's Tower Building, 110 West Fortieth Street, to 8 West Fortieth Street, room 1103.

AM JUN 23 1922

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JUN 23 1922

The American Food Journal

The National Magazine of the Food Trades



Photo by Moffett, Chicago

J. W. HERSCHER, Charleston, W. Va., Who was Reelected President National Wholesale Grocers' Association

Articles in This Issue: Reports of Wholesale Grocers and Margarin Conventions; Bacteria and Mold in Dehydrated Vegetables

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Volume XVII

The American Food Journal

Number 6

The National Magazine of the Food Trades

Established 1906

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JUNE, 1922

No. 6

Science Can Make Margarin Richer Than Butter

Addition of Small Portion of Codliver Oil Will Make Product Both Antirachitic and Antiophthalmic

By DR. CASIMIR FUNK*

Associate in Biological Chemistry, College of Physicians and Surgeons, Columbia University

DURING the 11 years in which I have been engaged in research, mostly in the field of vitamins, this is the first time that I have addressed a gathering of business men of one of the great food industries on some of the problems of development and production. This occasion augers well for closer co-operation between the practical business man representing industry, and the food industry, essentially chemical, in particular, and the laboratory man, who can help the former and from whom he can learn a great deal himself.

Of late the margarin industry is distinctly in the vitamin "phase." Being myself somewhat responsible for the development of this branch of nutrition, I am eager to overcome the difficulties which have recently arisen, and to consider to what degree the criticisms directed against the use of margarin and allied products are justifiable.

The margarin industry is, I understand, facing competition. The butter maker claims that his product is superior to margarin on account of the nature of the primary product this being less refined and containing certain elements of nutrition to be referred to later. The development of our knowledge of vitamins has had one undesirable effect, viz., it has enabled members of a certain school of nutrition to emphasize the value of natural foods. This doctrine has found, of course, willing followers among food producers who are more than willing to exploit these ideas to their own advantage. The producers of natural foods avail themselves of class legislation which would permanently cripple and even annihilate the industry to artificially compounded foodstuffs.

Editor's Note.—Food manufacturers and nutrition workers alike will welcome this timely and authoritative discussion of the vitamin content of margarin. To quote Dr. Funk, author of this paper, "The word 'never' does not exist in science." He proceeds to tell us of marvelous results already attained in synthetic food chemistry. When such a scientist as Dr. Funk tells us that margarin may be made richer in vitamin A than butter we listen respectfully. When he says to margarin manufacturers, "You may entirely disarm your opponents," we realize that he knows whereof he speaks. For the reader of this article there will be no confusion regarding the present knowledge of the vitamin content of margarin; he will **KNOW**.

Improving on Nature

The idea that we cannot improve food as provided by Nature is entirely wrong and reminds one of the idea, rampant in the first part of the 19th century, that the laboratory would never be able to duplicate organic products as elaborated by Nature in the plant and animal cells. The word "never" does not exist in science; as early as 1827 Wöhler synthesized urea, the first natural product made artificially in the laboratory. Since then hundreds of such products have sprung from this fertile source and have proved identical in every respect with the products elaborated by the cell.

The same situation applies to our fats. With increasing knowledge of our nutritive needs, and data being collected with marvellous speed, there is no reason why we cannot compound food mixtures superior in nutritive

value to the products provided for us by Nature. You see a very similar situation in the skimmed-milk industry. Its products were fought by the milk-producers on very much the same ground as the butter producers fought margarin, viz., the deficiency of vitamin A. After much effort on the part of the adversaries of skimmed-milk compounds, a product appeared on the market which contained a certain proportion of codliver oil. This product has been tested successfully on a number of infants and can be made richer in vitamin A, than original milk. Inasmuch as legislation could not debar such a product on the ground of deficiency in vitamin A, the adversaries of skimmed-milk products will be compelled to find other reasons for its prohibition. If I am right all the skimmed-milk compounds will be modified in the future in similar manner. This, it seems to me, indicates clearly a future tendency of the margarin industry. Unfortunately in the margarin field direct-feeding experiments are few, and those bearing upon the vitamin-content practically lacking. This is why I shall have to limit myself to somewhat indirect conclusions, based on analogous experimental work.

Value of Margarin as a Fat-Component of the Diet

Whatever may be the source of margarin, its utilization in the body, i.e., its caloric value, is equal to that of butter in the physiology of nutrition. We have been unable to detect any difference between the various fats and margarin in this respect. Whether the raw materials of margarin are of plant or animal origin, we are not dealing with fats foreign to the body, as the same fats are a part of our regular diet. Their fate in the body is the same. They are partly split by the pancreatic ferment, steapsin, into

* A paper read at the annual convention of the Institute of Margarin Manufacturers, Detroit, Mich., May 24 and 25.

their components, glycerol, and fatty acids, which absorbed by the intestinal walls in the form of soaps, and which form largely the tri-glycerides which can be used or stored up by the body.

The chemical nature of the various fatty acids derived from margarins or butter gives us no reason to believe in any real difference as to their utilization by the body. As a matter of fact, all the edible fats, including margarin, have the same co-efficient of digestibility, viz., 97-98 per cent, and yield on combustion the same number of calories. One of the latest text books on dietetics (Von Noorden and Salomon), states that margarin when properly prepared from sound ingredients can be used in place of butter. We see from the above that no claim can be made for nutritional difference between margarin and butter, from the point of view of its fat nature alone. All criticisms directed against margarin as a food originated from the results of vitamin research. It is this aspect of the problem that I here wish to emphasize. The new developments of vitamin research are too well-known to be dwelt upon here. I shall restrict myself to the vitamin associated with fats, viz., vitamin A, which has a direct connection with the production and distribution problems of the margarin manufacturers.

Vitamin A

Knowledge of Vitamin A has developed rapidly. Shortly after I had assumed theoretically the existence of a specific antirachitic vitamin in codliver oil, McCollum, with his collaborators, and simultaneously Osborne and Mendel demonstrated the existence of a vitamin associated with fats, which plays an important role in the nutrition of certain animals and presumably also of man. I say here expressly "certain animals," as recently I have been able to keep adult pigeons for 140 days on a diet free from this vitamin. First, it was assumed that vitamin A was associated only with animal fats, particularly butter, egg yolk and codliver oil, but lately its presence has been demonstrated in a number of plant products, especially green vegetables and also some seeds and roots. Vitamin A has been found to be much more widely distributed than was at first surmised. So much so, that in our experimental work we must take great care to free the diets from this admixture. This is done usually by extraction with fat solvents and oxidation at high temperature.

Results of These Simplified Diets

Even with these precautions the reports from the various laboratories are far from consistent. Some experimenters (Drummond and collaborators) report that on carefully purified diets young rats stopped growing after ten days, whereas Miss Paton and myself are unable to arrest growth completely even after two months and longer. It seems not impossible that besides the variations in the laboratory

conditions, various breeds of rats show differences in their vitamin A requirements. As regards the absolute requirements of a rate for vitamin A, we are not informed. It is assumed, however, that 5 per cent of butter in a diet is sufficient, and as a rat of 50-60 grams weight consumes about 5-6 grams of a standard synthetic fat, this means an equivalent of .25-.30 grams of butter a day.

Codliver Oil Requirements

Similarly, according to Zilva and Miura, the requirements of a rat in terms of codliver oil vary between 1.7-5 mg. per day. This means that codliver oil on an average is 100 times as potent as butter. Let us see what this would mean as calculated for a two-year old child (11 kilograms). This would mean 46 grams a day in terms of butter and .36 grams in terms of codliver oil. Judging from the amount of butter or cream in its diet, a child of two years gets approximately this amount. With rats, the requirements as regards vitamin A have been found to be materially smaller when the rats approach maturity. From analogy we must conclude that the same facts apply to adult man.

Part Played By Vitamin A

We are entirely in the dark as to what role vitamin A plays in the animal economy. We know that in its absence certain young animals at least cease to grow, but a lack of any essential constituent of food causes a similar result. We know that resistance to infections, particularly of the respiratory organs, is diminished, but this might not be confined to vitamin A. We know only of one specific connection and that is the occurrence of ophthalmia (xerophthalmia) following vitamin A deficiency; this is an eye infection which I will describe a little more in detail.

Ophthalmia

This condition has been observed in a number of laboratory animals, and also in children, when placed on a diet deficient in vitamin A. First regarded as a deficiency disease, in the same sense as beriberi and scurvy, it doubtless ultimately will be proven to be an unspecific infection of the eyelids and cornea, a sequence of deficiency in vitamin A. What the real connection is between these two phenomena is still unknown; it seems to us that the etiology of ophthalmia requires much further study, as was emphasized by Walker, Jour. A. M. A. 78, 283—1922) not long ago. Indeed, no pathological changes have so far been detected to justify this sudden invasion of bacteria.

As regards the time necessary for the development of ophthalmia, the available data varying widely, most of the investigators reporting the necessary time to be 6 to 11 weeks for rats and for dogs almost 100 days. This means that a long continued deficient dietary must be instituted before

symptoms manifest themselves. As regards the percentage of the animals so affected, there also is a considerable discrepancy in the available data. While Osborne and Mendel, who have the largest amount of statistical material on rats at their disposal, report 50 per cent of the animals affected by ophthalmia, Emmett reported almost 100 per cent. In my opinion cleanliness has something to do with the incidence; when a number of rats are kept together in one cage the incidence seems to be greater than when they are kept separately and cleaner. It is often disappointing when one desires to produce ophthalmia for the purpose of testing fractions obtained from codliver oil, to see the small percentage of animals which finally develop it and also the length of time necessary for this purpose. To summarize our personal experience, we find that the only definite manifestation of a deficiency in vitamin A, ophthalmia, needs further studies under uniform conditions as regards sanitation, age and breed of animals, and the method of food preparation.

Vitamin A and Rickets

Through the progress made in the last few years in the study of rickets, the problem of vitamin A presents a somewhat changed aspect, especially in connection with the subject of margarin. In accord with my conception that vitamin A has antirachitic properties, and with Mellanby's experimental work on young dogs, milk should be regarded as a food which is able to protect a young animal or a baby from rickets.

However valuable this would be in conforming the belief that milk and butter are "perfect foods," modern investigations on rickets have demonstrated clearly that, strange as it seems, milk and butter both are unable to protect a young animal from rickets, while codliver oil possesses these properties to a very marked degree. At the same time, as we already have seen, codliver oil contains much more of the substance which is curative for ophthalmia, than does butter. Should this phenomenon be interpreted to mean that for curing ophthalmia and for restoring good nutrition and growth, small quantities of vitamin A suffice, while for prevention of rickets large quantities of the same substance are necessary? Or should it be explained by the existence of a separate antiophthalmic and antirachitic vitamin, as McCollum and his collaborators recently suggested? These questions will be clearly answered only when the two fractions from codliver oil are separated from each other in a chemical way and tested for both actions. Whatever the final outcome of this issue will be, it is important to know that milk fails us in its antirachitic properties, and that we were obliged to seek protection by using codliver oil and other

factors, which, however, is not within the scope of our present discussion.

Material on Chemistry of Vitamin A

While the elucidation of the chemical nature of this vitamin, particularly its antirachitic variety, has seemed hitherto very remote, the recent progress made in the methods of testing justifies the hope that the antirachitic vitamin will not much longer remain a complete mystery. It seems to me that the leading food industries can no longer afford to designate vitamin A as an unsolvable mystery.

First, in the method described by McCollum Simmonds, Shipley and Park (*Jour. Biol. Chem.*, 51, 41—1922), we possess means to test for the presence of the antirachitic vitamin. The test is made on rats on a diet containing a low proportion of phosphorus and vitamin A and a high proportion of calcium. After 30 to 35 days the fraction to be tested is given to the rats daily for five days. After this time the animals are killed and their bones examined for fresh deposits of calcium salts. The test in our hands proved to be entirely reliable. Having this test at our disposal, material advances have been made in the chemistry of the antirachitic vitamin.

The chemistry of antirachitic vitamin was started by the author in 1912 when no physiological methods were available for testing for the presence of this substance. In 1914 McCollum and Davis (*Jour. Biol. Chem.* 19, 245, 1914) saponified butter and extracted the vitamin A with olive oil. This method was not exploited by the above investigators. While Drummond (*Biochem. Jour.* 13, 81—1919) failed to achieve success by using the saponification method, Steenbeck and his collaborators (*Jour. Biol. Chem.* 47, 89, 1921) made a very important advance in the same direction. Codliver oil was found quite stable to saponification with 20 per cent alcoholic potash solution, boiling the mixture for four hours; and what is still more interesting for us, the antirachitic vitamin could be extracted from the soap solution with ether and concentrated in this way.

A more recent paper by Zucker, Pappenheimer and Barnett (*Proc. Soc. Exp. Biol. Med.* 19, 167, 1922) signifies a further very desirable step in the same direction. Here the fatty acids and cholesterol were separated from the saponified oil and found inactive, while the mother liquor was more active than before. In this way the final fraction could be made as concentrated as desired.

By an entirely different procedure, which will be described in detail in collaboration with Dubin in the near future, we have obtained the antirachitic vitamin a hundred times more concentrated as compared with the original material. Besides the scientific interest and the well founded hope of arriving at the chemical nature of this vitamin in the near future, the practical application of results already

arrived at is obvious to all of you. It remains to be shown how long these concentrated preparations will remain active; but if they do, the problem of making food products deficient in vitamin A richer in this substance, is practically solved.

Vitamin A Content of Various Margarins

It is regrettable that we possess hardly any scientific data on this, theoretically, if not practically, important subject. Besides the fact, shown by Osborne and Mendel (*Jour. Biol. Chem.*, 20, 379, 1915) that the oleoportion of the beef fat contains all the vitamin A, while the solid portion is deficient in it, and the investigation of Halliburton and Drummond (*Jour. Physiol.*, 51, 235, 1917) who made a more thorough study, little data being available. Unfortunately these latter workers, while stating the source of the products, did not mention at all the way they were manufactured. Their results were as follows: Margarins of animal origin were found to contain vitamin A. Margarin of plant origin did not permit normal growth but prevented ophthalmia. Nut butters were usually also deficient. Lard substitutes made from hydrogenated vegetable oils were also found to be deficient.

It must be borne in mind that these results are based upon English margarin which under the existing law may contain as high as 10 per cent of butter, and might, therefore, give better results due to the presence of this admixture.

It is self-evident that in each margarin factory the vitamin A content of the finished product will vary, and has to be determined specially in each case. The vitamin content of the finished product will depend on the vitamin content of the raw materials, the amount of milk constituents in it and the method of manufacture. For instance, it has been shown repeatedly that the aeration of the food, especially in conjunction with heating, is detrimental to vitamin A. This has been shown in the case of lard by Drummond, Golding, Zilva and Coward (*Bio. Chem. Jour.* 14, 742, 1920), viz., that the method of rendering the lard is of significance for the vitamin A content of the finished product. This also is in accordance with the statement of Daniels and Loughlin (*Jour. Biol. Chem.* 42, 359, 1920) who have found that some samples of lard contained a noticeable amount of this vitamin. Heating and simultaneous oxidation is the method used in the laboratories for rendering the ingredients of the basal diet free from vitamin A.

The Manufacture of Margarin

All that I have said here can be applied in the practical procedure of margarin manufacture. It is quite probable that most of the natural foods contain some vitamin A which could be preserved by taking proper precautions. While hydrogenated fats are regarded at present as vitamin-

free, the present method of hydrogenation involves high temperatures, and it should be worth while to investigate whether or not a cheap method of hydrogenating oils could be devised which proceeds at low temperature and which would be not so destructive to the vitamin. In margarin manufacture a mixture could be selected to include a food ingredient with a naturally higher vitamin-content of the type of oleo. Finally by eliminating the destructive factors, the original vitamin-content could be more efficiently preserved.

Practical Dietetic Aspects of Margarin

In considering the nutritive value of margarin, we naturally have to compare it with butter. Since the discovery that fresh milk, cream and even butter display only an insignificant antirachitic potency, the dietetic position of margarin has been strengthened materially, since in this respect no noticeable difference has been established. On the other hand, the necessity of laws in all countries regulating the total solids and fat-content of milk, shows conclusively that not all milk producers are concerned particularly with the health of our babies. In this respect we are protected fully, but a new problem has arisen which requires in our opinion new legislation. This is the logical postulate first suggested by us and now experimentally fully confirmed. We are speaking here of the dependence of the vitamin-content of milk on the vitamin-content of the feed of the cow. At the present time probably most of the winter milks are decidedly lower in vitamin value as compared with summer milks; we can conceive, theoretically at least, the possibility of milk and butter being almost entirely vitamin-free. As Kennedy and Dutcher (*Jour. Biol. Chem.* 50, 339, 1922) have lately demonstrated, the winter milks by a suitable choice of feed could be rendered as nutritious as summer milks and on such selection we should insist. The vitamin-content of the marketed milk should be tested by the authorities and rapid methods for such tests should be devised.

The margarins are not a substitute for milk but a substitute for butter and as such have fulfilled well the requirements, except for deficiency in vitamin A, which as yet is not accurately determined. This vitamin, according to our present knowledge obtained from experiments on rats, is required more by the young, growing animal, than later in life. Judging from the occurrence of ophthalmia in children, when their diet is limited to highly skimmed milk as a source of vitamin, the human requirements for vitamin A seem to be analogous to those of rats.

The paucity of ophthalmia cases in central Europe during the war shows us that even in times of serious deficiency in fats, the human organism, especially adults on mixed diet, can quite easily limit this deficiency. In

children still on a one-sided diet, replacing butter by margarin of the present type may not always be desirable unless the diet is supplemented by a product rich in vitamin A, like fresh green vegetables, eggs or codliver oil. With adults, on the contrary, for whom the requirements of vitamin-content are smaller, the use of margarin has no dangers. Any of the existing text books on vitamins will give you a long list of foodstuffs which enter into everybody's dietary and which more than offset the partial deficiency of margarin. For cooking purposes, while no actual experiments are available on this point, it seems to us that margarin could safely replace butter. In frying and cooking it is likely that the vitamin A content of butter is for the most part destroyed by oxidation and may possess no advantage over margarin.

Outlook of the Margarin Industry from the Vitamin Standpoint

The margarins, as we already have seen, are fully equal in nutritive value as regard their fat content and the number of calories they yield, to butter and nut butters. From the standpoint of our present knowledge of nu-

trition, you may safely proceed as you have done successfully in the past, and you may also disarm entirely your opponents. Margarin differs from butter only in its diminished content of vitamin A. This seems to us the only scientific ground on which legislation adverse to the development of margarin manufacture could be attempted. In spite of the fact that such legislation, for reasons already explained, does not find justification in our eyes, this problem seems sufficiently important to the trade association of margarin manufacturers to invite a vitamin expert to address its convention. If I am right in this assumption, nothing seems easier to me than to restore or supplement the deficient vitamin. As I have stated above, the careful selection of raw materials, avoiding injury of the sensitive vitamin A will remove partially this difficulty. How far this is possible with your present processes of manufacture, I cannot say. To go a step further, you can make your margarin as rich or richer in vitamin A than butter is. I have here in mind the addition of a small amount of codliver oil. The product thus improved would have a distinct advantage

over butter in that it would be antirachitic as well as antiophthalmic.

A certain amount of experimentation on this subject appears to be necessary, but judging from the requirements of rats for butter as compared with codliver oil, .36 gram of the latter is equivalent in value to 46 gram of butter. This means that to a pound of margarin 3-4 grams of codliver oil would have to be added or 40 mgr. of the concentrated vitamin fraction which has been obtained from the oil. The latter addition would constitute only one hundredth of 1 per cent of your finished margarin.

Millions of pounds of margarin sold yearly to the public perhaps may not show you the desirability of any further improvement in your manufacturing processes, but to my mind, the exploitation of the vitamin doctrine of your not always fair competitors renders a new step in the development of your industry very timely. It must be the task of the laboratory workers in nutrition to help the food industry to improve the existing food products to the best of our knowledge for the benefit of the present and future generations.

New Method for Making Cane Sirup Proves Successful Commercially

A NEW process for making cane sirup that will not readily ferment or crystallize was used commercially throughout the cane-producing sections of the South during the season just closed, says the Bureau of Chemistry, United States Department of Agriculture, which has been assisting cane-sirup manufacturers by applying the science of chemistry to their problems. Letters received recently from many manufacturers in different sections of the South state that they have used the new process with very satisfactory results, producing a better sirup than they have ever been able to make by any other method.

Hitherto the manufacturers have had to contend with characteristics of cane sirup that gave them much trouble and made it almost impossible to put on the market a uniformly good grade of cane sirup. If the sirup was made thin it was likely to ferment, if made thick it would crystallize, that is part of it would go to sugar. To get exactly the density that would prevent both fermentation and crystallization was a result the manufacturers of cane sirup had seldom been able to accomplish.

While studying this problem, specialists of the Bureau of Chemistry

found that by the use of invertase which converts cane sugar into a form that like honey will not crystallize, they could make cane sirup of a density that would not readily ferment. One pound of invertase is sufficient for 800 gallons of sirup. Sirup made by this process therefore will not crystallize or under ordinary conditions ferment.

A cane-sirup manufacturer in Louisiana writes to the department in part as follows: "I have several letters in my possession from various of my customers to whom I have shipped a mixed shipment of 'invertase' sirup with that of the regular 33 Baume, one from an old customer at Caruthersville, Mo., stating that it was the finest stuff that they have ever used, and that they would reorder very shortly this 'invertase' sirup for their spring use. I have many other expressions in the use of 'invertase' which are very flattering."

The expressions to which the manufacturer refers include these statements: "I'm glad to state that the 'invertase' process has eliminated all complaints that I had in the past due to fermentation and crystallization." "We think it about the finest sirup we have ever tried." "It (new process) is indeed wonderful. We just ate the

last of the sirup to-day and it was just as good as the day we received it." . . . "There is no doubt the new process will revolutionize the industry."

Specialists of the Bureau of Chemistry are now giving attention to the problem of producing cane sirup of uniform color and flavor. This involves the clarification of the cane juice in such a manner that the sirup will always have the same color. Progress is being made and it is the belief of the specialists that as soon as this feature of the work is completed, the market for cane sirup may be greatly extended.

There is great need in certain sections of the South for a crop to grow on land that was formerly used for cotton but which because of the ravages of the boll weevil will no longer produce cotton profitably. Cane will grow on this land and it is believed that a high-grade cane sirup of uniform quality and color can be marketed in quantities that will enable much of the land no longer suitable for cotton to be used in the growing of cane. The people of these sections know how to grow cane, the soil and climate are suitable, and it is said that there is reason to expect that the cane-sirup industry of the South will be greatly extended.

Bacteria and Molds in Dehydrated Vegetables

Government Investigation Reveals That Tin Cans with Friction Tops Render Only Absolute Moisture Protection

By S. C. PRESCOTT, P. F. NICHOLS and R. POWERS

(Contribution from Commercial Dehydration Laboratory, U. S. Bureau of Chemistry)

DEHYDRATED vegetables were practically unheard of food products in the United States before the Great War. The use of these foods by the Allied armies was responsible for the development of a dehydration industry in this country. The use of dehydrated vegetables by the army, and more recently by the general public, has naturally brought up questions concerning their nutritive value and healthfulness. The relation of bacteria and molds to spoilage of such products is also of particular interest to the consumer. The bacteriological studies reported in this article include observations of (1) the numbers and types of bacteria and molds found on dehydrated vegetables, (2) the relation of temperature and humidity of storage to the development of these organisms and (3) the relative efficiency of different types of containers in preventing spoilage of dehydrated products by their growth.

General Plan of Investigation

Commercially dehydrated vegetables, secured from three commercial plants, were examined on arrival from the factory for the presence of bacteria and molds. Different portions of the products were then subjected to storage tests under a variety of conditions of temperature and humidity, and the effect of these conditions on the bacteria and mold counts was noted. Different products were finally subjected to storage tests in different cartons, and the relative efficiency of the different containers in preventing spoilage was observed.

The dehydrated vegetables used in this work were obtained from three commercial plants, Producer 1, Producer 2, and Producer 3, situated in different sections of the country. The dehydrated vegetables furnished by each producer, together with the laboratory sample number assigned each product, are indicated in Table 1.

EDITOR'S NOTE — Professor Samuel C. Prescott of Massachusetts Institute of Technology, with P. F. Nichols and R. Powers of the Commercial Dehydration Laboratory of the Bureau of Chemistry at Washington, have contributed a very valuable work to the progress of dehydration by their recent investigation, of which the accompanying article is a complete report.

Their investigation shows that bacteria and molds are normally present in very large numbers in commercially dehydrated vegetables. When such products are to be packed for storage for a period of months it was found that containers impervious to water must be used. The investigators recommend tin cans with friction tops as rendering perfect protection against absorption of moisture. Paper cartons, paraffined and unparaffined, were suitable under reasonably dry conditions of storage, but did not prevent spoilage when conditions were humid.

Methods Followed in Bacteriological Examinations of Dehydrated Vegetables

The nature of such products renders it very difficult to separate from them all the micro-organisms which may adhere to the dried and shrunken tissues. Only the approximate numbers present can be ascertained. The following method gave the most uniform and consistent results and was adopted as the standard for these investigations.

Media. Plain agar was prepared, using 15 grams of shredded agar, 3 grams of Liebig's meat extract, 5 grams of Difco Bacto Peptone, and tap water to make 1,000 grams. The media was dissolved over a free flame, auto-

claved at 15 pounds for 15 minutes, re-adjusted to weight, adjusted to a reaction of plus one, filtered through cotton and flannel, bottled and sterilized in an autoclave at 15 pounds for 15 minutes. Dextrose agar was prepared in the same way except that the reaction was adjusted to neutral, and 10 grams of dextrose was added previous to filtering.

Procedure.—10 grams of sample were weighed out in a clean, sterile dish and transferred to a stoppered flask containing 200 cc. of sterile tap water. After a thorough shaking, this 1 to 20 dilution was incubated at 37 deg. C. for two hours. The 1 to 20 dilution was shaken 25 times, and higher dilutions up to 1 to 20,000 were made. These dilutions were shaken 25 times and aliquot portions were plated in plain agar and dextrose agar. The plates were incubated inverted at 37 deg. C. for 48 hours. Plate counts of bacteria and molds were made with a reading glass over a black ruled plate.

Comments on Results.—Experience indicated that the initial incubation of the 1 to 20 dilution at 37 deg. C. for two hours was sufficient to soak out the sample enough to loosen and free most of the micro-organisms adhering to it without being so long that the initial number had a material chance to multiply and that these two possible sources of error probably compensated one another. An annoying source of inaccuracy was the prevalence of spreading colonies on the plates which rendered a count difficult and often made it necessary to use very high dilutions. A small variation in the number of colonies on such plates produced wide variations when the number per gram was calculated. These inaccuracies are largely corrected by averaging several determinations.

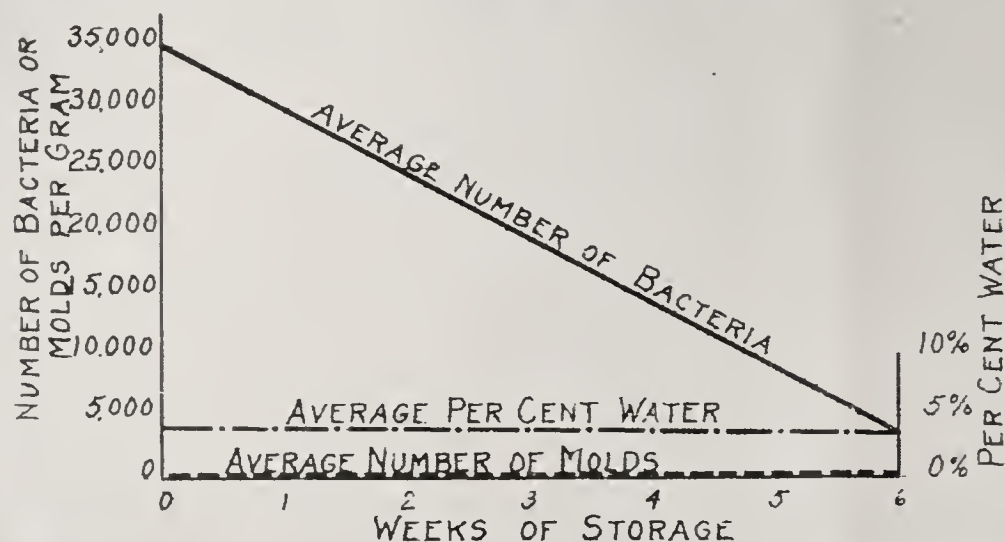
Results of Bacteriological Examinations of Dehydrated Vegetables as Received from Factory

The numbers of bacteria and molds found by this method in the samples of dehydrated vegetables freshly received from the factories are shown in Table II. Since the average counts of bacterial colonies on all duplicate plain agar and dextrose agar cultures were but 7 per cent higher in the case of the dextrose agar, all bacterial counts reported represent averages from duplicate cultures on both media incubated for 48 hours at 37 deg. C. The number of mold spores reported are, however, based exclusively on counts from dex-

TABLE I

Producers and Sample Numbers of Dehydrated Vegetables Used		
Producer 1	Producer 2	Producer 3
Shredded Cabbage No. 11	Shredded Cabbage No. 21	Shredded Cabbage No. 31
	Shredded Cabbage No. 21a	
Shredded Carrot No. 12	Shredded Carrot No. 22	Sliced Carrot No. 32
	Shredded Carrot No. 22a	
	Sliced Onion No. 23	Sliced Onion No. 33
Riced Potato No. 14	Quartered Potato No. 24	
	Sliced Potato No. 24a	
	Spinach No. 25	Spinach No. 35
	Sliced Tomato No. 26	
	Shredded Turnip No. 27	Sliced Turnip No. 37
	Turnip Tops No. 28	
Soup Mixture No. 13		

CHART I
AVERAGE NUMBER OF BACTERIA AND MOLDS ON
DEHYDRATED VEGETABLES DURING STORAGE IN TIN CANS AT 0°C.
(PRODUCTS CONSTANT IN MOISTURE CONTENT)



trose agar plate cultures incubated for 48 hours at 37 deg. C. It should be noted that the application of this method to products containing slightly more than the critical percentage of moisture would not disclose the presence of *Aspergillus repens*, a mold usually dominating the spoilage of such products. This mold develops slowly if at all at 37 deg. C., and such growth as occurs would scarcely be recognized from bacterial at the end of 48 hours. Since few spores of this species would usually be found on products showing no signs of spoilage, this fact would not invalidate the general soundness of the enumeration of viable mold spores on fresh sound dehydrated vegetables such as are reported in Table II.

TABLE II

Number of Bacteria and Molds in Freshly Dehydrated Vegetables

Pro-Dehydrated Vegetable	No. of Sample	No. of bacteria p.g.	No. of molds p.g.
2 Sliced Beets	20	*160,000	400
1 Shredded Cabbage	11	173,500	600
2 Shredded Cabbage	21	8,500	200
2 Shredded Cabbage	21a	110,000	400
3 Shredded Cabbage	31	* 400	2,000
1 Shredded Carrot	12	20,500	20
2 Shredded Carrot	22	14,000	20
2 Shredded Carrot	22a	40,000	600
3 Sliced Carrot	32	* 200	2,000
2 Sliced Onion	23	300,000	20,000
3 Sliced Onion	33	1,200	2,000
1 Riced Potato	14	8,800	60
2 Quartered Potato	24	6,300	20
8 Sliced Potato	24a	63,000	200
2 Spinach	25	*670,000	2,000
3 Spinach	35	140,000	4,000
2 Sliced Tomato	26	16,200	20
2 Shredded Turnip	27	4,700	0
3 Sliced Turnip	37	* 200	2,000
2 Turnip Tops	28	* 94,000	2,000
1 Soup Mixture	19	1,800,000	80

*Plain agar count only.

Bacteria are much more numerous than mold spores on the products listed in Table II. From several thousand to several hundred thousand bacteria per gram, as compared with but a few hundred to a few thousand mold spores

per gram, seem to be normally present. The number of bacteria present on any one product varies widely in different samples. Thus, the number present in four different samples of shredded cabbage ranged from 400 to 173,500 per gram, and the number found in four different lots of shredded carrots ranged from 200 to 40,000 per gram.

With the exception of dried soup mixture, there is evidently no correlation between any product and the number of bacteria associated with it. Several times as many bacteria are present on soup mixture as on any of the other products. This fact indicates one way by which bacteria become deposited upon the products. Soup mixture is made by mixing in proper proportions a number of vegetables which have been prepared and dried separately. The greater amount of handling and mixing of the ingredients permits greater contamination from the settling and collecting of dust upon the product.

Types of Micro-organisms Present

Types of bacteria and molds which occur on these products were isolated from prevailing types of colonies on

agar plate cultures of infusions of dehydrated vegetables, and these micro-organisms were identified. The morphological, cultural, and staining characteristics of the bacteria were determined, and the bacteria were classified according to Chester. The molds were examined microscopically, and were identified as to genus, but no special effort was made to determine the species.

It was found that most of the bacteria belonged to the soil and water flora. The water bacteria were most numerous, being represented by *B. Lustigii*, *B. cuticularis*, *B. Weichselbaumii*, *B. subflavus*, *Ps. sinuosa*, *Ps. cohaerea*, *Ps. ambigua*, and either *M. cremoides* or *M. radiatus*. The members of the soil group were *B. vacuatus*, *B. ginglymus*, *Bact. mycoides* and *Ps. viridescens*. The other bacteria isolated were *B. dentrificans*, habitat soil and horse manure, and *M. tenacatis*, an organism often present in milk.

A brief study of the special morphological and cultural characteristics of bacteria occurring upon dehydrated vegetables yielded the following general facts: First, spore-forming bacteria were always present; second, anaerobic bacteria were nearly always present; and third, from 40 to 45 per cent of the bacteria growing upon litmus dextrose agar plate cultures proved to be acid formers.

The molds occurring upon 368 dextrose agar plate cultures of infusions of dehydrated vegetables were found to occur with the following relative frequency: *Aspergillus*, 179 times; *Penicillium*, 105 times; *Mucor*, 50 times; *Alternaria*, 8 times; *Fusaria* and *Trichoderma*, each 4 times; *Sporotrichum*, 3 times; *Monilia* and *Spicaria*, each 2 times; *Thamnidium* and *Herpocladia*, each once; and 9 unidentified molds. All these molds are common molds of decay, and *Aspergillus*, *Penicillium*, *Mucor* and *Alternaria*, which occur with the greatest frequency, are most commonly found on the skins of vegetables, in the air, and in the soil.

CHART II
AVERAGE NUMBER OF BACTERIA AND MOLDS ON DEHYDRATED
VEGETABLES DURING STORAGE IN TIN CANS AND CARDBOARD
CARTONS AT 20°C., AVERAGE RELATIVE HUMIDITY.
(PRODUCTS CONSTANT IN MOISTURE CONTENT)

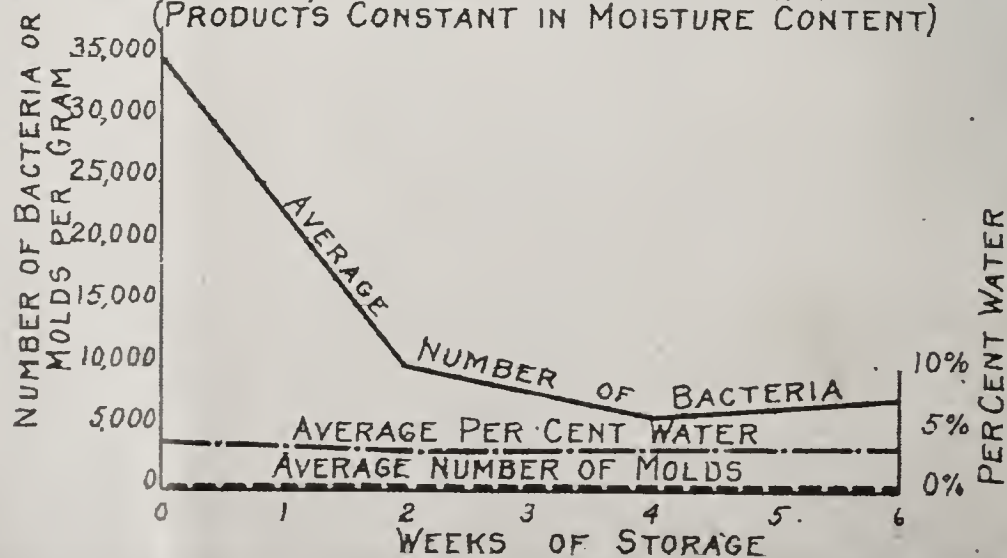
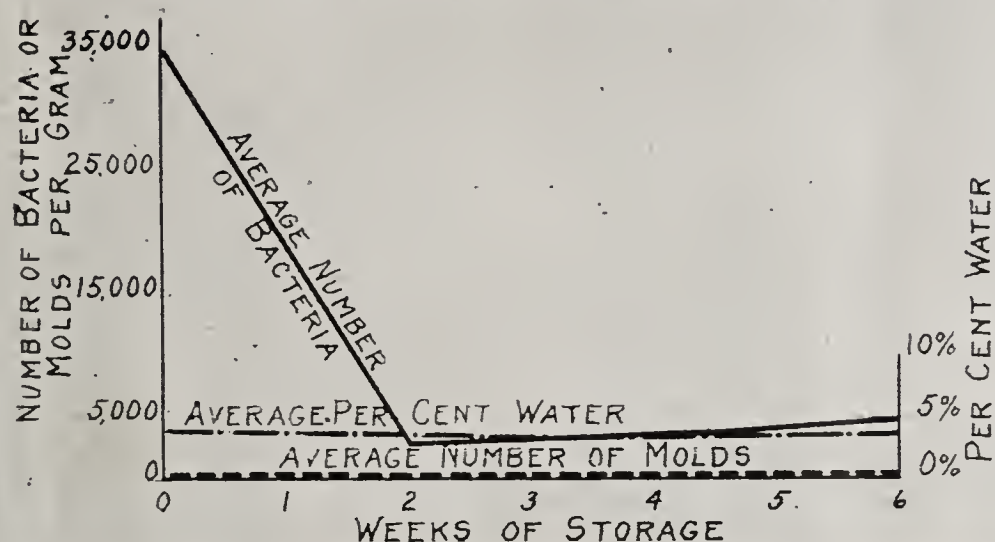


CHART III
AVERAGE NUMBER OF BACTERIA AND MOLDS ON DEHYDRATED VEGETABLES DURING STORAGE IN TIN CANS AT 37°C. (PRODUCTS CONSTANT IN-MOISTURE CONTENT)



A better idea of the variety present on different dehydrated vegetables is obtained from the following data:

Dehydrated Vegetables	Molds Isolated
Potato	Aspergillus, Pencillium, Mucor, Trichoderma, Sporotrichum, Spicaria
Carrot	Aspergillus, Aspergillus niger, Mucor, Sporotrichum
Cabbage	Aspergillus candidus, A. niger, A. fumigatus, Mucor, Trichoderma, Sporotrichum, Spicaria
Turnip	Aspergillus, Aspergillus oryzae, Pencillium, Herpocladia
Tomato	Aspergillus, Mucor, Trichoderma
Soup Mixture	Aspergillus, A. wentii, Mucor, Trichoderma, Thamnidium
Onion	Aspergillus, Mucor

Soil bacteria and mold spores, ever present on the surface tissues of vegetables, often are not completely removed in the washing process, and these with water bacteria, are deposited upon the freshly cut tissues from the water used in washing the vegetables. Later, in storage bins and during packing there is opportunity for dust from the air to settle upon the dehydrated vegetables, thus increasing the number of micro-organisms. Such conditions do not indicate careless methods of production, nor injure the product for human consumption. The micro-organisms are dormant as long as the product is kept dry, and are killed in the cooking before the vegetables reach the table.

Relation of Storage Conditions to Number of Micro-organisms on Dehydrated Vegetables During Storage

It is well understood that dehydrated vegetables do not spoil because their relative dryness prevents the development of bacteria and molds. It is not so well understood what changes in the numbers present may take place during storage at different temperatures or under different conditions of humidity which would allow the products to either lose or absorb moisture. The following investigation was conducted in order to determine the relation of

the temperature of storage and of the moisture content of the product during storage to the numbers of micro-organisms.

Containers.—Two types of container were used. The first consisted of a small friction top tin can in which the product remained practically constant in moisture content, regardless of the humidity of the atmosphere. The second consisted of a small waxed paper carton which permitted the product to slowly lose or absorb moisture depending upon the relative humidity of the atmosphere.

Storage Conditions.—The storage conditions represented a variety of conditions both of temperature and relative humidity of the air. These conditions embraced the extremes which dehydrated vegetables will ordinarily encounter during transportation and storage.

Low Temperature—0 deg. C. "very moist": A cold storage warehouse in which the humidity remained around 95 per cent.

Ordinary Temperature—20-25 deg. C. "semi-moist": A chamber at ordinary room temperature and relative humidity of from 45 to 50 per cent.

Ordinary Temperature—20-25 deg. C. "moist": A chamber at ordinary room temperature in which the relative humidity was raised to 70 per cent by means of open vessels of water and hanging cloths kept moist by capillary action.

High Temperature—37 deg. C. "dry": An incubator in which the temperature was held at 37 deg. C., and in which the relative humidity was always 25 per cent or less.

High Temperature—37 deg. C. "very moist": A small chamber held at 37 deg. C. in which the air was kept nearly saturated at 95 per cent relative humidity by covering the bottom with a layer of water under a grating on which the cartons were placed.

Dehydrated Vegetables Used for Storage Tests.—Nine of the dehydrated vegetable products, consisting of five different vegetables, were used for storage. These products were Tomato 26; Cabbage 11; Cabbage 21; Carrot 22; Carrot 12; Turnip 27; Riced Potato 14; Quartered Potato 24; Sliced Potato 24a.

Procedure.—A set of 13 tin cans and 13 waxed paper cartons was filled with each of the dehydrated vegetable products. Proper precautions were observed that no extraneous micro-organisms were deposited upon the products in this process. Three tin cans and three paper cartons of each product were placed for storage in each of the storage chambers, except the 0 deg. C. "very moist" cold storage chamber, in which only one tin can and one waxed paper carton of each product were placed.

At the end of two, four, and six weeks of storage, one can and one paper carton of each product were removed for examination from all storage chambers, except the 0 deg. C. "very moist" chamber, from which the samples were removed for examination only at the end of six weeks of storage.

The examination of each sample included a determination of moisture, a determination of the number of bacteria and molds per gram, and a record of any change in appearance of the

CHART IV
AVERAGE NUMBER OF BACTERIA AND MOLDS ON DEHYDRATED VEGETABLES DURING STORAGE IN CARDBOARD CARTONS AT 37°C. IN DRY AIR (PRODUCTS LOSING MOISTURE)

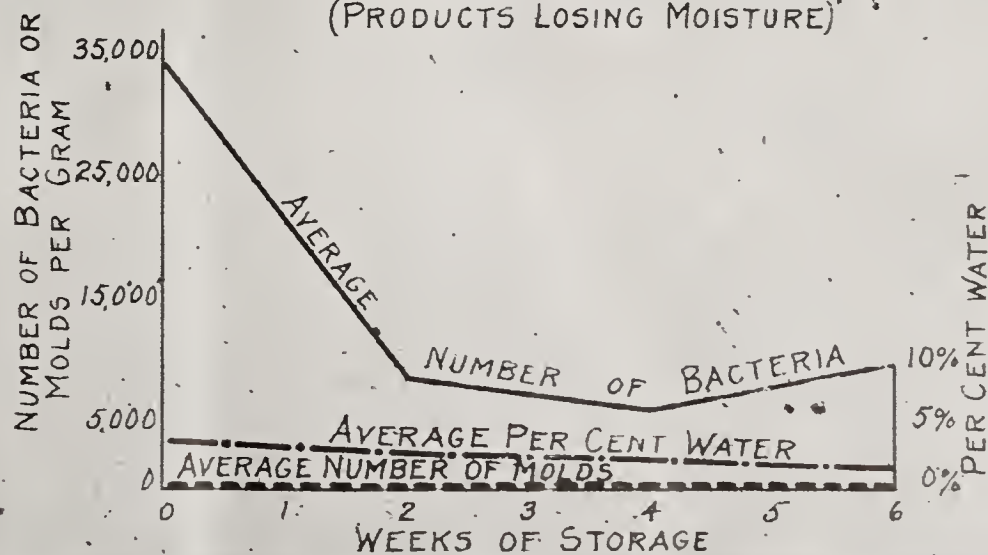
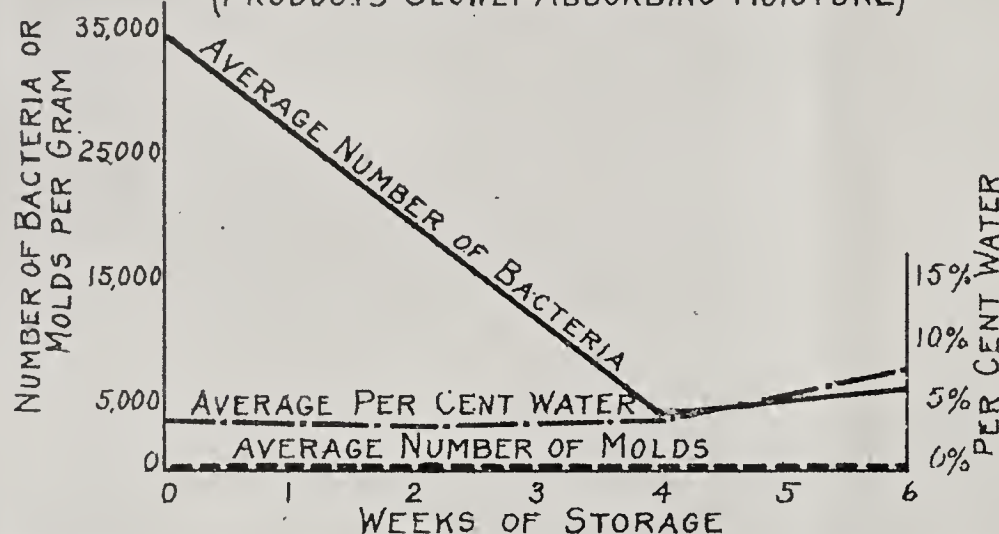


CHART V
AVERAGE NUMBER OF BACTERIA AND MOLDS ON DEHYDRATED VEGETABLES DURING STORAGE IN CARDBOARD CARTONS AT 20°C.
70% RELATIVE HUMIDITY
(PRODUCTS SLOWLY ABSORBING MOISTURE)



sample. The method for determining numbers of bacteria and molds has been previously described. The official method for moisture determination consists in drying a weighed sample in a vacuum oven at 70 deg. C. to constant weight and calculating the percentage of moisture from the loss in weight. Unfortunately, a vacuum oven was not available for these investigations, so that a different method had to be used. The following empirical method was used:

Method for Moisture Determination.

—Two or three grams of sample is weighed into a flat bottomed dish and dried in an open air dry oven for four hours at 80 deg. C. The loss in weight is calculated as moisture.

Later, in order to determine the relation of the results of this method to those obtained by the official method, eleven different dehydrated vegetable products were cut fine and a sample of each was artificially adjusted to low (under 10 per cent), medium (10 to 20 per cent), and high (over 20 per cent) moisture contents. Moisture determinations were made on each sample by this official method and the empirical method just described. The open air dry oven method gave lower results in all cases than the official method. From the average results were calculated the factors by which the results of the open air dry oven method should be multiplied to approximate those of the official method.

Moisture Content of Sample		
Low	Medium	High
(under 10%)	(10% to 20%)	(over 20%)
2.07	1.44	1.35

While the results of this method are lower than those of the official method, a large number of duplicate determinations made upon different samples varied by only from 0.2 to 0.3 per cent. The method therefore provided a satisfactory means of comparing the relative moisture contents of the products during storage.

Analysis of Data.—The data gathered in these storage tests have been grouped and averaged to show the ef-

fects of temperature and moisture content of the products upon the number of micro-organisms present during storage. These data are presented in the following charts and discussions of results.

General Influence of Storage Conditions Before Spoilage

Under all temperature conditions of storage and where the moisture contained by the product does not increase to the critical point where actual multiplication and spoilage occurs, there is first a gradual decrease in the numbers of bacteria, following which the number remains practically constant during the remainder of the storage (Charts I to VI, inclusive). The initial decrease in numbers probably represents the dying out of strains unable to survive the unfavorable environment. Under the same conditions as above, the number of viable mold spores remains practically constant throughout the period of storage. This would be expected of mold spores which are able to survive long periods of exposure to such adverse conditions as were presented by the temperatures of storage and dryness of the products.

Specific Influence of Temperature of Storage

Certain temperatures are more favorable than others to the life and growth of micro-organisms. The optimum temperature in the case of the soil and water bacteria and common molds, identified as constituting the flora present on dehydrated vegetables, is about 20 deg. C., or ordinary room temperature. Other things being equal, we would expect a greater decrease in numbers at both higher and lower storage temperatures. The data in Charts I, II and III show the relative number of micro-organisms present during storage at 0 deg. C., 20 deg. C., and 37 deg. C., respectively, under conditions in which the moisture content of the product remained constant. The temperature of storage therefore will be entirely responsible for any difference in the rate of decrease at the different temperatures.

The chief points may be summarized as follows:

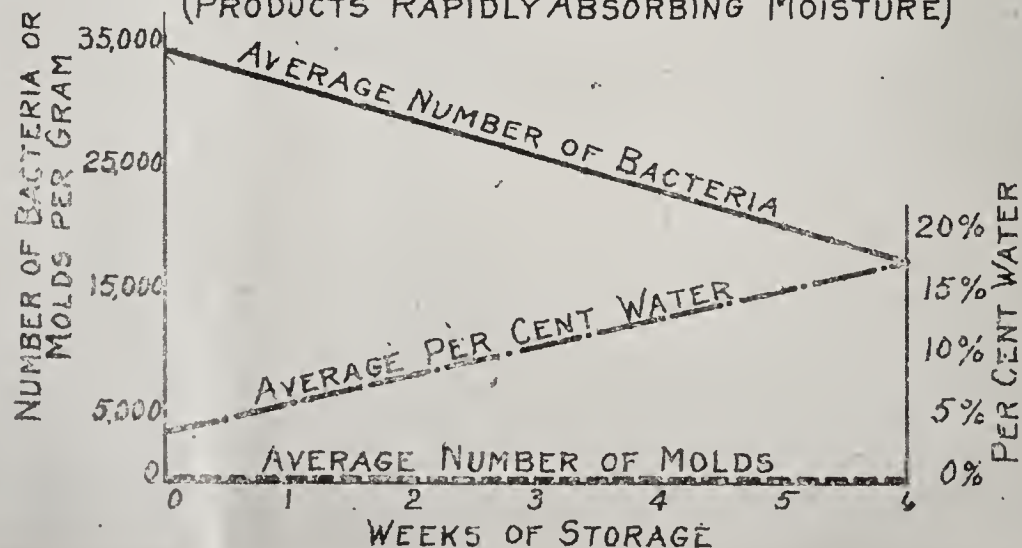
Temp. of Storage	Average Moist. Contents of Products During Storage	Decrease in Nos. of Bacteria During Weeks Storage
0° C.	3.8%	90.4%
20° C.	3.6%	78.8%
37° C.	3.8%	86.5%

The dryness of the products is responsible for the death of nearly 79 per cent of the bacteria at 20 deg. C. The more unfavorable temperatures of 37 deg. C. and 0 deg. C. are not responsible for conspicuously greater decreases. We may conclude that differences in temperature within the range of this experiment constitute a very minor factor in influencing the decrease in numbers of bacteria during storage, as compared with the moisture content of the product.

Specific Influence of Changes in Moisture Content

Decrease in Moisture Content.—Chart IV indicates the decrease in numbers of bacteria on products stored in waxed paper cartons in the 37 deg. C. dry chamber when the average moisture content dropped from 4 per cent to 1.7

CHART VI
AVERAGE NUMBER OF BACTERIA AND MOLDS ON DEHYDRATED VEGETABLES DURING STORAGE IN CARDBOARD CARTONS AT 0°C.
95% RELATIVE HUMIDITY
(PRODUCTS RAPIDLY ABSORBING MOISTURE)



per cent in six weeks. During this period the number of bacteria dropped from 35,000 to 10,300 per gram, a reduction of 70.6 per cent which is not as great as would be expected, considering the severity of the storage conditions.

Increase in Moisture Content.—During storage in waxed paper cartons under humid conditions at 20 deg. C., 0 deg. C., and 37 deg. C., the products absorbed moisture quite rapidly, with the following effects upon the numbers of bacteria and molds contained by them.

These figures show very clearly that as the moisture content of the product increases, the bacteria find the conditions more favorable, fewer die, and the decrease in numbers becomes less

in the original condition as purchased and after giving them a protective coat of paraffine after filling.

Storage Tests on Relative Efficiency of Different Cardboard Cartons Cartons Used

Five different cartons suitable for packing dehydrated vegetables were obtained from the manufacturers. Four of these cartons were made of unparaffined brown cardboard, with ordinary tight fitting cap covers. The fifth carton was made of a very good grade of cardboard which had been heavily paraffined and possessed tightly fitting tops. The following list indicates the source, identification symbols, and condition of these cartons.

Manufacturer A.—Carton A1: Unparaffined, tall, cylindrical, cardboard,

Humidity of Storage	Temperature of Storage	Increase in Moisture Content of Product During 6 Weeks Storage	Change in Numbers of Bacteria During 6 Weeks Storage	Change in Numbers of Molds During 6 Weeks Storage
70%	20° C.	4.0% to 7.9%	81.3% Decrease	No change
95%	0° C.	4.0% to 17.9%	45.1% Decrease	No Change
95%	37° C.	4.0% to 23.5%	7.752% Increase	221,000% Increase

and less marked. Finally, the point is reached in the moisture content of the product when both bacteria and molds find conditions so favorable that growth and multiplication ensue and the product is rapidly decomposed.

Miscellaneous Observations

It was observed that the numbers of bacteria could greatly increase before any apparent deterioration occurred. Rapid growth and sporulation, however, followed the first appearance of the vegetative mycelium of molds, and the destruction of the vegetable tissues followed quickly. The molds and not the bacteria are the most dangerous agents of spoilage.

Charts I to VI may further be examined from the standpoint of the relative protection of the tin can and the waxed paper carton against prevailing conditions of humidity. The amount of moisture in dehydrated vegetables in tin cans remains practically constant, regardless of the relative humidity of the air of storage, while the moisture in those products packed in cardboard cartons fluctuates with the relative humidity of the air. The fact that tin cans are moisture proof and that cardboard cartons are not will be commented upon later in the discussion of the relative efficiency of different types of containers.

Types of Containers Used for Dehydrated Vegetables

Dehydrated products are sometimes packed in sealed tin containers, which are impervious to water, but more often cardboard or fibre board cartons are used. While the reduced bulk of dehydrated vegetables makes them less expensive than bulky canned vegetables to pack in tin, it is a real saving to the manufacturer to be able to use cardboard cartons. A series of storage tests were made to determine the relative protection against mold spoilage afforded dehydrated vegetables by different types of cardboard cartons, both

friction top carton, diameter, 4 inches, height, 6½ inches; carton A2: Same as A1, except diameter, 3 inches, height, 5½ inches; carton A3: Unparaffined, short, cylindrical cardboard, friction top carton, diameter, 5 inches, height, 4 inches.

Manufacturer B.—Carton B1: Unparaffined, cylindrical cardboard, friction top carton, diameter, 3¼ inches, height, 2½ inches.

Manufacturer C.—Carton C1: Paraffined, tall, cubical, cardboard carton, friction top, 2¾ inches x 2¾ inches x 3¾ inches high.

Dehydrated Vegetables Used

Eleven different dehydrated vegetable products were used in this storage test. These were Beet 20, Shredded Cabbage 21a, Shredded Cabbage 31, Shredded Carrot 22a, Sliced Carrot 32, Sliced Onion 23, Sliced Onion 33, Spinach 25, Spinach 35, Sliced Turnip 37, and Turnip Tops 28.

Storage Conditions

The storage chamber used in these tests was the one previously described as "20-25 deg. C., moist," a chamber at ordinary room temperature in which the relative humidity was raised to 70 per cent by means of open vessels of water and hanging cloths kept moist by capillary action.

Method of Procedure

Two each of these five cartons were filled with each of the eleven dehydrated vegetables. One of each pair was dipped, after filling, completely in melted paraffine. Every carton was weighed empty, weighed again after being filled, and in those cases where the cartons were dipped in paraffine, again after the paraffine had cooled and solidified. It was thus possible in each case to know the weight of the carton, of the vegetable, and of the paraffin. One empty untreated carton and one empty carton dipped in paraffine were weighed and used as blanks. One complete set of filled cartons, both

unparaffined and paraffined, and another complete set of empty cartons, both unparaffined and paraffined, were placed in the moist chamber at 20 deg. to 25 deg. C. and relative humidity of approximately 70 per cent.

Every two or three days these cartons were separately weighed and immediately returned to storage. In this way the increase in weight of each empty carton could be deducted from the gain in weight of each filled carton, leaving the gain in weight due to the moisture absorbed by the vegetable. From the original weight of each vegetable, the initial amount of moisture contained, previously determined, and the gain in weight, was calculated the percentage of moisture of each vegetable at each observation. A complete record of the amount of moisture contained in each vegetable in each carton was kept for 70 days of storage.

Results of Storage Test

None of the cartons afforded complete protection against absorption of moisture by the products during the period of storage, although much less moisture was absorbed by those dried vegetables stored in cartons which had been dipped in paraffin.

Contrary to expectations, there was little difference in the protection afforded the vegetables by the four different unparaffined cartons. The absorption of moisture by each vegetable progressed at practically the same rate in each of the unparaffined cartons A1, A2, A3 and B1. Likewise, the rate of moisture absorption by all vegetables progressed at practically the same rate in cartons A1, A2, A3, and B1, dipped in paraffin, and in carton C1 which had been coated with paraffin at the factory. The rate of moisture absorption was, of course, much less rapid in the case of the paraffined cartons. The protection afforded the carton by paraffin was further illustrated in the case of carton C1, paraffined once at the factory, and given another coat of paraffin after filling. The products stored in this carton absorbed moisture more slowly than in any other case.

TABLE III

Average Increase in Percentage of Moisture in All Dehydrated Vegetables during Storage at 20-25° C., and 70% Relative Humidity in all Unparaffined and Paraffined Cardboard Cartons.

No. of days	Aver. 4 Cartons		Aver. 1 Carton
	Unparaffined	Paraffined Once	Paraffined Twice
0	5.3	5.3	5.3
5	7.1	5.1	5.2
10	8.0	5.1	5.2
15	10.5	4.9	5.3
20	10.4	4.5	5.3
25	11.0	4.7	5.3
30	15.5	4.7	5.3
35	17.3	4.7	5.4
40	19.8	5.2	5.6
45	22.3	5.7	5.6
50	molds visible	6.7	5.6
55	molds visible	7.6	5.7
60	molds visible	8.3	5.5
65	molds visible	9.3	6.6
70	molds visible	10.6	6.7

Table III may be examined to yield facts in addition to those already remarked.

Under storage conditions in very humid air at room temperature, dehydrated vegetables stored in untreated cardboard cartons commence almost immediately to absorb moisture which progresses at a rapid rate, and by the forty-fifth day of storage evidence of mold growth is visible and the products contain an average of 22.3 per cent moisture. The reader is strictly cautioned not to infer that this represents the critical moisture content below which molds will not develop, for under the conditions of the experiment whereby examinations were being made at 2-or-3-day intervals on products rapidly increasing in moisture, mold growth could be initiated at lower moisture contents long before it was actually observed.

Under the same storage conditions there seems to be a period of 50 or 60 days during which dehydrated vegetables stored in paraffined cardboard cartons apparently absorb no moisture, and may possibly lose a little. At the end of this time the product commences to absorb moisture and the absorption continues at a moderate but uniform rate.

The first 50 or 60 days, when the products fail to absorb moisture, probably represent the period during which

the moisture is penetrating the paraffin coating and impregnating the cardboard fibres. While the vegetables will keep much longer in paraffined cartons, it will therefore be only a question of time before such products will mold under merely moderately severe conditions of storage.

These facts show very clearly that only when there is no danger of dehydrated vegetables encountering humid conditions of storage before they are consumed is it safe to store them in ordinary cardboard cartons. Paraffining the carton delays the spoilage for a number of weeks, but when the storage under humid conditions must last a matter of months, it is unsafe to rely on this precaution. In the absence of any suitable waterproofing preparations for making such cartons impervious to water, a container absolutely impervious to water must be resorted to in such cases.

Conclusions

(1) Bacteria and molds are normally present in commercially dried vegetables. The bacteria vary in number from several thousand to several hundred thousand per gram and mold spores from several hundred to several thousand per gram.

(2) The bacteria present were identified as soil and water types. The molds are common molds of decay.

(3) Under usual conditions, where

the moisture content is kept low (under 10 per cent), the number of bacteria present tends to decrease when the products are stored at temperatures of 0 deg. C., 20 deg. C., and 37 deg. C. The number of molds remains more nearly constant under such conditions of storage.

(4) When products are stored in humid atmosphere and in such containers as will allow absorption of moisture, the bacteria and molds begin rapid growth and multiplication, after the moisture content reaches a sufficiently high percentage.

(5) Tin cans with friction tops rendered perfect protection against absorption of moisture. Paper cartons, paraffined and unparaffined, were suitable under reasonably dry conditions of storage, but did not prevent spoilage when the conditions were humid. In such cases the paraffined cartons protected the products longer than the unparaffined ones.

These investigations were conducted in co-operation with the Massachusetts Institute of Technology, under direction of Professor Samuel C. Prescott. The data have been compiled and revised for publication by C. R. Gross, Bureau of Chemistry, U. S. Department of Agriculture.

Margarin Institute Makes Appeal for "Fair Play"

DR. J. S. ABBOTT, secretary of the Institute of Margarin Manufacturers, Munsey Building, Washington, has sent the following letter to Dr. W. W. Randall, president Central Atlantic States Dairy, Food and Drug Officials Association:

My dear Dr. Randall:

I note that one of the subjects for discussion at the Sixth Annual Convention of the Central Atlantic States Dairy, Food and Drug Officials Association is as follows:

The Deception Practiced in Advertising Oleomargarine. By Mr. James Foust, Director, Bureau of Foods, Harrisburg, Pa.

The very subject of Mr. Foust's address is an indictment of the whole oleomargarine industry with respect to its methods of advertising. During the fourteen years of my experience in food and drug control as a State and Federal official, I do not think any program committee of any one of the several associations of food officials in the United States ever singled out a particular industry in the manner indicated above. On behalf of the margarin industry I respectfully protest against such an indictment, for the following reasons:

(1) It is contrary to sound policy and a respect for a square deal to make any such indictment without giving the industry an opportunity to be heard in reply thereto. My information is that your Convention is to be held in Executive Session.

(2) The margarin industry is a legalized industry in every State in the Union. The State which Mr. Foust represents exacts a toll of about \$500,000 per annum from the margarin in-

dustry in the way of special taxes. The industry is contributing special taxes to the amount of something over \$3,000,000 per annum to the Federal Government and to other States in the Union. The industry is therefore paying more than its share of taxes to the support of the offices of the food control officials represented in your association. It is, therefore, fundamentally wrong for such officials to lend themselves to methods prejudicial to this industry.

(3) Oleomargarine is in competition with butter. Both products are used in the same way and for the same purposes. If I were permitted to do so, I could call your association's attention to a lot of very rank false advertising of butter. I could point also to State laws that have legalized the grossest forms of misbranding with respect to dairy products. Officials, representing all industries, might without prejudice, discuss false advertising with respect to competing products. From a perusal of your program it does not appear that this will be done.

So, far as false advertising in general is concerned, I believe my record as a food official, as well as the Secretary of this Institute, is sufficient evidence that I stand for an honest policy on a level with any food official in America. Neither I nor this Institute has any apology to make for any deceptive advertising with respect to our own product or with respect to any other commodity of trade. It is quite possible that there may be one or more margarin manufacturers whose advertising might be looked upon as deceptive in some particular. But to indict the whole industry because of

such an error is certainly unjustifiable.

The fact that there is more deceptive advertising practiced with respect to many other commodities than with respect to this particular commodity would indicate that this particular industry has been singled out for unwarranted criticism.

The fact that there is a law in Pennsylvania prohibiting the use of the words "milk," "butter," "cream," "Jersey," "Holstein," and other words indicative of a dairy, in connection with the sale of oleomargarine, indicates a prejudice against the product on the part of the legislature of that State. Such a law on the very face of it would indicate to a man who is unfamiliar with the ingredients entering into the composition of oleomargarine that the ingredients mentioned are not used in the manufacture of oleomargarine. As a matter of fact, either milk, skimmed milk, or butter, or a combination of two or more of them, is used in the manufacture of every pound of oleomargarine made in this country. A manufacturer is prevented by law however from stating this fact to the people of Pennsylvania. The law is fundamentally unsound. A man has undeniable right to make a true statement of the composition of any legalized product.

Oleomargarine is made of the products of American agriculture. It is not in harmony with good government to treat it unfairly.

In view of the above considerations, I respectfully protest that the singling out of this particular industry, as indicated on your program, is unfair, unjust, and without warrant on the part of City, State, and Federal officials.

Wholesale Grocers Hold Convention

Last Year Unprofitable—Committee Reports on Legislation Pending and Passed Affecting Food Trades

THE National Wholesale Grocers' Association of the United States held its sixteenth annual convention on June 7, 8 and 9, at the Congress Hotel, Chicago. While the convention proper did not begin until June 7, on June 5 and 6 meetings of the executive committee and of the board of directors of the association with wholesale grocers were held at the hotel. There was an address of welcome by Jay D. Miller, Sprague, Warner & Company, Chicago, and response in behalf of the association by Oliver J. Moore, vice-president, J. W. Herscher, the president, made the opening address of the convention. After pointing out the work done by the association during the year, its influence and prestige among allied trade organizations and its high standing with the Federal Government he said, in part:

"One of the primary objects of this organization is to see that there is a uniformity of State and Federal laws regarding the enforcement of the various pure food and drugs statutes. Fortunately for our Legislative committee, they have not been burdened during the past year. But we have Congress with us always and there have been numerous bills which in some way or other affect our business.

"However, with nearly all state legislatures convening during the coming winter, may I say that when you receive information from this committee in regard to pending bills, of interest to the food distributor, will you not please give them your very careful and immediate attention.

"The Federal Trade Commission committee report is a most interesting one and worthy of close examination. During the past year, the Commission has issued numerous orders which have been of interest to all merchants and, in addition, the Supreme Court has rendered decisions in the hardwood lumber case, the Beech-Nut Packing Company case and, more recently, the decision in the Winsted Hosiery Company case, all of which are of interest to us. One of the most important orders of the Federal Trade Commission from the standpoint of the jobber, was handed down in the Mennen Company case. This has been appealed to the courts. Fuller explanation of these cases will undoubtedly be forthcoming from counsel."

Speaking further of the activities of committees during the year, Mr. Herscher mentioned the report of the discount for cash committee as being little short of marvelous, considering the financial and economic conditions pre-

vailing and he also particularly mentioned the work of the contracts committee, about which he said: "The conditions under which the buyer has had to operate during the war time period and since have not been at all satisfactory. Some of the causes for this were beyond both the power of the buyer and the seller to change. Chiefly we have to take into consideration the crop hazard. No living being can, with a certainty, say that a crop will be harvested in the future.

Contracts Have Been Freely Violated

"During the past several years, to meet the changing conditions there can be no doubt but what the spirit and the intent of contracts has been grossly violated by both buyer and seller. However, I am pleased to say that, as a result of an honest endeavor, through conference and frank discussion with the different organizations, many of the misunderstandings have been eliminated, mainly because the buyer has absorbed a keener appreciation of the problem of growing and converting seasonal food and, on the other hand, the seller has also realized that a wholesaler, acting as a distributor, can sell no more than can be consumed. There have been numerous outbursts in the relationship between the canners and their customers during the past few years but we are now on common ground and your contracts committee is to be congratulated in having developed, through conference with canners' organizations, a form of contract which I think is equally fair to both buyer and seller. It is a better form of contract than has ever existed in the past and while there may still be imperfections, by diligent work in the future, these can and will be corrected. The use of the suggested forms of contract is not compulsory. If you can make a better trade, that is your right and privilege. From my knowledge of what has been accomplished, I feel that if this organization had done nothing else, the work of the canners conference and contracts committees would have justified its very existence. The arbitration method of settling differences between buyer and seller rather than actions of law is ample justification for the work of the arbitration committee."

Addresses at the first session on Wednesday were made by James Moore, president National Canners' Association; F. E. Kamper, president National Retail Grocers' Association; Leonard P. Ayres, vice-president Cleveland Trust Company; Fred Mason, president American Specialty Manu-

facturers' Association; James L. Ford, Jr., president National Food Brokers' Association; William C. Breed, counsel National Wholesale Grocers' Association; and Alvin E. Dodd, manager Domestic Distribution Department, Chamber of Commerce of the United States. Some of the more important of these will be published in this and a later issue of The American Food Journal.

At the session on Thursday, at which John W. Morey, vice-president of the association presided, the speakers were: Clifford Thorne, special counsel of the association; Nelson B. Gaskill, chairman Federal Trade Commission; Irving S. Paull, secretary Joint Commission of Agricultural Inquiry; and Dr. Melvin T. Copeland, director Bureau of Business Research, Harvard University.

1921 Unprofitable Year for Wholesale Grocers

Dr. Copeland said, in part:

"The year, 1921, was the most unprofitable year in the wholesale grocery business since 1916, the period for which we have collected figures on the cost of doing business. Although the firms from which reports were received showed an average net loss of 0.5 per cent in 1920, the average net loss in 1921 was 1.9 per cent of net sales. This is the result shown by our tabulations of the reports from 344 firms with an aggregate volume of sales of \$487,951,000. The reports from these firms were all adjusted to the standard classification of accounts which has been used since this series of comparative records was started. In addition to the firms whose reports were included in the tabulations, about fifty other firms, with an aggregate volume of sales of over \$50,000,000, sent in reports that did not arrive early enough for use or that were too incomplete to be utilized. An examination of these supplementary reports has indicated, however, that they show practically the same results as were shown by the firms from whose reports the tabulations were made up.

"The average cost of doing business in 1921 was 11.5 per cent of net sales. This compares with a total expense of 9.0 per cent in 1920, 9.1 per cent in 1919, 9.1 per cent in 1918, 8.8 per cent in 1917, and 9.5 per cent in 1916. Although exactly the same stores were not included in these tabulations for each year, nevertheless our tests have indicated that the general results are approximately comparable.

"The chief reason for the average net loss shown in 1921, therefore, was the difficulty in readjusting expenses

promptly when the full effect of the crisis of 1920 was reflected in the drop in prices and the falling off in sales. This difficulty of making readjustments was shown in practically every item of expense. The common figures for executive salaries, for example, was 1.1 per cent of net sales in 1921 as compared with 0.8 per cent to 0.9 per cent in the preceding five years. Wages of receiving and shipping force amounted to 1.4 per cent in 1921 as compared to 1.1 per cent previously. Total salesforce expense was 2.7 per cent in 1921 as compared with 2.1 per cent in 1920, 2.2 per cent in 1918 and 1919, and 2.3 per cent in 1916 and 1917. Outward freight, express, and cartage was 0.6 per cent in 1921 as compared with 0.4 per cent in previous years. The differences in the other items were similar to those just stated.

Average Cost of Doing Business

"The average cost of doing business in 1921, according to the reports received by the Harvard Bureau," said Dr. Copeland, "varied as follows in the different Federal Reserve districts: Boston, 10.8 per cent; New York, 11.4 per cent; Cleveland, 11.2 per cent; Richmond, 10.6 per cent; Atlanta, 11.5 per cent; Chicago, 11.4 per cent; St. Louis, 12.4 per cent; Minneapolis, 12.1 per cent; Kansas City, 12.2 per cent; and San Francisco, 11.8 per cent."

Dr. Copeland added that a substantially increasing number of firms are making use of these comparisons of the cost of doing business for guidance in readjusting their own methods and costs, as was evidenced by the number of letters received by the Bureau from wholesale grocers during the past few weeks. As an example, he pointed out one wholesale grocery firm, employing nine salesmen with sales in 1921 of \$720,000.

"The total salesforce expense was 2.8 per cent of net sales. This firm was paying its salesmen straight salaries and actual traveling expenses. Since the business was losing money, it was plain that the firm must in some way pare down many of its expenses, and one of the items that needed especial consideration was salesforce. At first the manager of the company contemplated a general cut in salaries. In view of the keen competition that he had to face, however, it seemed unwise to have a disgruntled salesforce on his hands since the salaries that he was paying were not exorbitant in themselves. He therefore decided against any flat reduction in salaries. He next considered a change in the method of paying the salesmen. Careful consideration of this step indicated, however, that a change in the method of paying salesmen would not necessarily solve his problem. If merely the form of payment were changed without anything else being done by the management, the chances were that either the expense would not be reduced, or if they were reduced the effect would be practically the same as that of a flat cut in salaries. The road to the real

solution was found by an analysis of the record of each salesman together with a comparison of territories. The first step was to work out the ratio of salesforce expense, including both salary and traveling expense, for each salesman to the individual man's sales. This showed that one salesman had a salesforce expense of 1.7 per cent, another 1.8 per cent, and the highest 3.8 per cent. The others ranged in between these extremes. One of the districts that had a high salesforce expense was a new territory which was being developed. That was a case where the continuance of the high expense was justified temporarily without any reflection whatsoever upon the salesman's ability. Another district that had a high salesforce expense was one that was such poor territory that a satisfactory volume of sales hardly could be expected from it. The firm decided to drop part of that territory and to combine the rest with the territory of one of its other men. In another case the salesman in a good average territory had a substantially higher expense percentage than other salesmen in similar territories. His sales were only \$61,000 for the year as compared to an average of \$80,000 for the whole salesforce. His sales of wide margin lines, furthermore, were a smaller proportion of his total sales than was shown by another salesman in similar territory with sales of \$86,000 and a substantially lower percentage of salesforce expense. Obviously that was a case for the sales manager to handle with a view either to securing a decided improvement in the results shown by the salesman or else replacing him.

"In my experience such an analysis usually reveals differences as wide as this and the comparison of the total results ordinarily provides an index to the chief sources of trouble. I believe that there is a worth while opportunity for a good deal more of this sort of analysis in the wholesale grocery business than is now being made. It does not involve keeping more records than most firms now keep. It is rather the utilization of information already at hand as a guide to the management, particularly by means of percentages for comparative purposes.

"Under existing conditions it seems to be especially worth while for every wholesale grocer to analyze carefully the record of each salesman; compare conditions in different territories; consider the possibility of enlarging some territories; and also consider the possibility of covering territories less frequently, or of finding other means of carrying on the business with less expense. Many firms, of course, feel that everything possible has been done in this direction. Under the adverse business conditions of the present time, however, necessity is plainly forcing many business men to do things which in the days of prosperity they deemed absolutely impossible of accomplishment.

Highest Net Profit 4.4 Per Cent

"The highest net profit on the wholesale grocers' reports for 1921—and there were a substantial number that showed a net profit despite the average loss—was 4.4 per cent of net sales. This firm has sent in its reports each year to the Bureau for the last six years, and regularly has shown a net profit. In 1920 when an average net loss also was shown for the trade as a whole, this firm had a net profit of 4.3 per cent of net sales. Its rate of stock-turn was 12.6 times in 1921 and 12.5 times in 1920.

"The correlation between the rate of stock-turn and the cost of doing business is best shown by the following comparison of our 1921 results. Sixty-five firms had an average stock-turn of less than 4.0 times a year in 1921; these firms showed a common figure for total expense of 13.2 per cent of net sales. One hundred sixty firms turned their stock between 4.0 and 6.0 times in 1921 and had an average total expense of 11.6 per cent. One hundred fourteen firms turned their stock more than 6.0 times in 1921 and these had an average cost of doing business of 10.4 per cent. Thus the firms turning their stock less than 4.0 times had a total expense of 13.2 per cent, and the firms turning their stock more than 6.0 times had a total expense of 10.4 per cent, a difference greater than the average net loss in the trade.

"Our investigations, so far as they have gone, indicate that the rate of stock-turn primarily affects the fixed charges and upkeep expense. The firms that turned their stock less than 4.0 times had a common figure for total fixed charges and upkeep of 4.2 per cent of net sales; the firm that turned their stock more than 6.0 times had a common figure for fixed charges and upkeep of 2.7 per cent, a difference of 1.5 per cent which in itself was within 0.4 per cent of the average net loss in the trade as a whole. The largest single item in fixed charges and upkeep expense is interest, which includes both interest on borrowed money and interest on the net investment. For the firms that turned their stock less than 4.0 times the common figure for interest was 2.4 per cent of net sales; for the firms turning their stock more than 6.0 times it was 1.4 per cent of net sales. Other fixed charges and upkeep expenses—heat, light, taxes, insurance, and repairs of equipment—were lower in percentage of net sales for the firms with the high rate of stock-turn than for the firms that turned their stock slowly. Obviously less money is tied up in inventory, and a greater volume of sales can be carried on in a given space if the rate of stock-turn is rapid than where it is slow.

"The rate of stock-turn does not ordinarily affect other items of expense directly, but as a matter of fact our tests have indicated that the firms that turned their stock rapidly generally had lower expenses for most of the

(Concluded on page 35)

Low Cost for Distributing Food Products

Joint Commission of Agricultural Inquiry, Appointed by Congress, Finds Good Condition in Grocery Trade

By SYDNEY ANDERSON*

Member of Congress and Chairman of Joint Commission of Agricultural Inquiry

THE creation of the Joint Commission of Agriculture Inquiry was the result of the agricultural crisis precipitated by the unexampled decline in the price of agricultural commodities, beginning in October, 1919, and reaching its full effect about June, 1921. The resolution under which the Commission proceeded was very broad and required the determination of the causes of the condition of agriculture; the comparative condition of other industries; causes of the spread between the producer's and consumer's prices; the adequacy of the credit machinery, the transportation facilities and the marketing and distributing machinery of the country.

Our job was essentially one of organization. There have been many attempts to ascertain the causes of the spread between producers' and consumers' prices. These attempts have usually followed the plan of tracing the progress of a bushel of wheat from the producer to the consumer of the bread. In practically every instance such attempts have fallen down. This was due to the loss of identity of the original product.

We began at the other end in the hope that we might be able to trace backward from the retailer to the producer. We asked the president of the National Retail Grocers' Association and a representative committee to meet with us for a conference. We told the committee that we wanted the prices which they paid for typical food commodities and the prices at which they sold them over a period from 1913 to 1921, in many instances by months; the stock turnover; cost of doing business; net profit and any other facts which might be helpful.

Then we asked Mr. Herscher and a committee of wholesale grocers to have a conference. As a result questionnaires were worked out and sent to the trade. This resulted in information from the wholesale trade on the same commodities that were covered in the retail questionnaire.

Organizing Manufacturers

In this way we organized the manufacturers of many food commodities, the railroads, the mills and the elevators so as to get a complete picture of the movement of the commodity

from the farm to the consumer and the prices, margins and profits that were made from one end of the chain to the other. We were thus able to check the figures given by one trade against those given by another.

The figures were not only gathered, but were tabulated by the trade organizations. Altogether we asked more than fifteen million questions and made more than twenty-five million calculations. In some instances the net results of the tabulations can be stated in a table one inch by four, but they tell the story.

Story Told by the Figures

I should like to give you some of these figures. The cost of distributing food products through wholesale and retail channels is less than the cost of equivalent operations in any other class of commodities. The cost of retail distribution, exclusive of profits, in 1921 was 16.8 cents for groceries, as compared with 24.03 cents for clothing, 24.9 cents for hardware and 26.88 cents for shoes in each dollar of sales. The gross profits of the retailer per dollar of sales were 2.5 cents for groceries, 1.13 cents for clothing, 1.52 cents for shoes, and .82 cents loss for hardware in 1921.

These figures are all largely abnormal owing to the decline in prices, shrinkage of inventory values and the failure of the cost of operation to decline as fast as material prices. In 1919, which was a much more nearly normal year, the cost of operation of retail stores, that is, the margin exclusive of profit in each dollar of sales, was 14.2 cents for groceries, 24 cents for clothing, 18.4 cents for hardware, 23.78 cents for shoes and 25.6 cents for dry goods. The profits per dollar of sales in 1919 was for groceries 4.8 cents; for clothing 7.9 cents; for hardware, 5.84 cents; for shoes 9.36 cents, and for dry goods 4.9 cents.

The average turnover of retail grocery stocks was 7.7, for hardware 2.12, shoes 1.76, and for dry goods 2.9.

Cost of Wholesale Operation

The cost of operation of wholesale grocery stores in 1921 was 10.16 cents per dollar of sales and his profit .48 cents per dollar of sales on the wrong side of the ledger. In 1919 the wholesale grocer's cost of operation was 8.42 cents and his profit .83 cents per dollar of sales, as compared with the cost of operation of 8.42 cents and a profit of 2.55 cents in 1913.

The average wholesale grocer turned his stock 5.5. The cost of overhead, selling and distribution of manufacturers of eight trade-marked food commodities was 38.37 cents per dollar of sales in 1921, or more than the combined cost of operation of the wholesaler and retailer in the same year. His profit was 8.62 cents, likewise more than the profit of both the wholesale and retailer per dollar of sales. In 1919, the manufacturer's cost on these commodities for overhead, selling and distribution was 31.79 cents and his profit, 8.45 cents per dollar of sales; again in both cases more than the combined operating cost and profit of both the wholesaler and retailer.

Ratio of Investment to Turnover

It is fair to say, however, that the ratio of the manufacturer's investment to stock turnover is generally very much higher than the similar ratio for either the wholesaler or retailer and that much of the manufacturer's cost of selling and distribution presumably is reflected through the creation of market demand to the benefit of the wholesaler and the retailer.

The retail prices of thirty-seven items of groceries increased from \$5.13 in 1913 to \$9.45 in 1920 and dropped back to \$7.62 in 1921. The margins increased from \$1.09 to \$1.61 in 1920, dropping to \$1.47 in 1921. The margin of 1921, however, was 2 per cent higher than it was in 1920 and 2 per cent lower than it had been in 1913.

Margins and Profits

Prices of other commodities than food rose higher and declined less than the prices of food commodities. Margins and profits both wholesale and retail on food commodities were nearer to pre-war levels in 1921 than the margins and profits of any other class of commodities. While it is not possible to assign with scientific accuracy the reasons for this situation it is probably due to the more rapid decline in the price of raw food materials, the faster stock turn in food commodities and the reduced purchasing power of the dollar which naturally reflects more quickly upon commodities with quick stock turnover and the highly competitive character of the business and the intimate and frequent relationship of the grocer with the customer.

* Extract from an address delivered before the National Wholesale Grocers' Association at its annual convention in Chicago, June 7-10.

Results of Study

We have not found out much that is new, but we have proved the things which everyone in the trade knew were true but couldn't prove and we have demonstrated some truths which the public knew but seldom thought about.

The price which the consumer pays is not just a price, but a composite of the prices of many services and materials.

When Mrs. Smith buys a bottle of pickles at the corner grocery she doesn't just buy pickles; she buys a little salt, vinegar, spices, mustard, a glass bottle, a label, a tin cap, some packing and a part of a packing case. She also pays a part of the wages of the delivery boy, the grocer, the wholesaler, the fireman, engineer and brakeman that ran the train that transported the case and the pickles, the wages of the manufacturer and employes who pickled the pickles and the wages of the farmer who raised the cucumbers out of which the pickles were made. She also paid for some rent, interest, storage, insurance, some profit and a little for depreciation and obsolescence.

We found that had Mrs. Smith raised the cucumbers in her back yard and put them down with a little vinegar and dill in a yellow crock in the cellar, as our mothers used to do, they would have cost no more than they cost our mothers.

We found that it cost more for service today than it does for production. We found that when raw material prices go up, wages, rent, insurance,

interest and storage charges go up and the cost of business rises about as prices rise. We found that prices tend to rise together, but more or less unevenly, and that they come down more rapidly and more unevenly than they rise, that this uneven rise and fall of the prices of different commodities changes the relative rewards of those who produce, manufacture and distribute the commodities; that is, rising and falling prices take money from some groups of people and give it to others. We found that the gain made in periods of rising prices was pretty much offset by the loss in periods of declining prices.

Causes of Rising Costs

We came to the conclusion that the increasing cost of distribution is partly due to the more complex character of modern living conditions, partly to the variety of the consumer's requirements, customs and habits and partly to unorganized and unstandardized farm production, which increases the risk of the middleman; partly to over plant capacity which increases capital cost and induces seasonal unemployment; partly to production in excess of effective demand which congests the channels of distribution and adds to the charges for interest, storage and obsolescence; partly to over competition which brings about duplication of agencies and adds expensive service for accommodation, conveniences, luxury to the costs of distribution; partly to the ever widening radius of distribution of many commodities which adds to the cost of selling, partly to the increased cost of transportation and partly to the fact that the agencies

of distribution are not co-ordinated so as to make possible an even flow of merchandise from the producer to the consumer.

People in the Business Must Attack Problem

We found that the problem must be attacked all along the line, not by Congress, but by the people that do the business. We found that no one knows anything about distribution, that the facts of distribution are still to be collected and organized and that our investigation extensive as it was did no more than to put the first curlieue on the letter "A" on the alphabet of distribution. The first step, therefore, in reducing the cost of distribution is to get the facts of distribution and to state those facts so that they will be beyond dispute. The second step is to organize the knowledge obtained and to make it available to those who can use it as a basis of sound business decisions.

The Trade Organization an Efficient Institution

The "trade organization" is being made an efficient instrument for securing this information and could be made even more so for this purpose. It must be organized definitely with regard to serving the purposes of a collector of facts and a disseminator of information.

The problem of distribution is as old as human relationships. It is the products of the commercial instinct and self-interest of mankind, and has had to be reckoned with since the days of primitive man. The genius and vision of the American people can surely do something toward its solution.

Some Aspects of Price Cutting

By NELSON B. GASKILL*

Chairman, Federal Trade Commission

A SELLING price has two points or poles of reference. It bears a variable relation to a current of other prices offered contemporaneously which constitute the "market." It may be either above or below the market at the option of the seller. In this phase a selling price is governed solely by the desire of the seller to obtain a sale. The other relation of a selling price is to the cost accrued against the commodity when offered for sale. This production cost is fixed by the operations of the seller and cannot be volitionally varied except as the processes prior to offer for sale may be modified and result in a lessening of charges.

It is axiomatic that a selling price must include a margin over production cost sufficiently large to include a balance after deduction of all charges in-

curred but not properly included in production cost, if the sale is to result in a profit. A normal, profitable selling price, therefore, may range from the "market" as its maximum to "production cost" as its minimum. If it is above the market it is not likely to induce a sale and if it is below production cost it will not produce a profit.

Competitive selling prices therefore, which must range between market price and production cost if they are to be profitable, represent the desire of the seller to effect a sale within limits which he cannot transgress, and over but one of which can he exercise any lawful control.

The proper object of business is and its necessary result must be, profit. It seems almost unnecessary to assert or to attempt to demonstrate this proposition yet a clear perception of its meaning and application is essential to my thesis.

The Fundamental Principle of the Competitive System

The fundamental principle of the competitive system, the impelling cause of its adoption and our adherence to it is, that properly applied it tends always to an adequate return for the productive effort. It is an economic recognition of the truth in the statement that "the laborer is worthy of his hire."

Each member of society is at once a producer and a consumer, operating in both capacities on a competitive basis. It is often assumed in the course of discussion that the consumer is a distinct class wholly apart from producers but such assumption is a fallacy which makes proper conclusions from such a course of reasoning impossible. The producer-consumer character of each member of society is fixed by necessity and the principles which govern his productive operations in which he is the seller also regulate his actions as a consumer or buyer.

* Address before National Wholesale Grocers' Association at Chicago Convention, June 7-10.

When the question is put to the individual in his capacity as consumer-buyer or to the mass of society in that character, "At what price are you entitled to receive that which some one else has produced?" the answer is apt to be "For nothing if we can get it. For as little as possible if we must pay at all." And the answer is wrong.

The "something for nothing or for as little as possible" theory is wrong because it prevents the existence of that equipoise of the producer-consumer relation which the fundamental principle of the competitive system demands. In an isolated instance the seller has received less, the buyer more than an adequate return. Multiply the individual into the sum total of all the individuals in society, extend the operation of the theory to a universal application and there is exhibited an organized society of producer-consumer units, asserting and at the same time denying the right of a return for productive effort which equals the cost of production. This is exactly the condition which now obtains.

I am not attempting to bring forward a solution of the whole problem nor to state the formula for determining in every case what constitutes an adequate return. But when as in a sale of commodities both phases of the producer-consumer relation can be stated in common terms, viz., dollars and cents, applicable to and used by both, there is no obstacle to right reasoning and just conclusions.

The keystone of the arch, the fundamental principle of the competitive system is that in a state of free and fair competition the return from service equals or perpetually tends to equal its cost. Service as here used is all inclusive. It must, it does follow that he who sells at less than cost, he who buys at less than cost, whenever cost can be ascertained and stated in terms common to buyer and seller, is frustrating the operation of the vital principle of the system upon which we rely and to which we have committed the continuity of organized society. He has violated our economic constitution. And the result is none the less certain because it is done unwittingly.

Summary of the Conclusion

If you have followed me so far, the resulting conclusion may be thus summarized. Each individual in his capacity as a producer is entitled to a profit and each in his capacity as a consumer is obligated to pay a price which yields a profit.

If you deny this proposition, it seems to me that your alternative is in its logical conclusion, an assertion of the right to reduce some portion of mankind to slavery. Because if it is right to take a part of an individual productive effort below its cost, it is right to take the whole effort and its result without any compensation whatever.

Price cutting is, of course, price making. It is the expression of the extent or degree of the desire to sell. It may be directed against the market

in which event it is adverse to all competitors or it may be thrown forward against competitors in a particular locality or against a particular competitor. It may represent the seller's relation to conditions of supply and demand, it may express his individual preference for volume of sales, it may represent his efficiency and advantageous location as shown in his relatively lower cost. A selling price may represent any or all of these elements but if it is to be profitable it must exceed the seller's individual cost and if it is to be consistent with the fundamental principle of the competitive system, it cannot be less than the seller's own cost. Habitual selling below cost as a method of doing business, is in my judgment an unfair method of competition.

There are circumstances, of course, which justify its emergent use just as there are conditions which justify the amputation of a limb. But these are outside the rule, not exceptions within it.

We erroneously assume that all properly directed competitive efforts as they are more and more efficiently performed, tend to a reduction in price to the consumer. Efficient and properly directed competitive efforts may quite as well and with equal justification increase the return to the producer and be exhibited in effect as an increased price to the consumer. It is quite apparent that when efficient methods of distribution and marketing adjust supply to demand properly, relieving one glutted market and supplying others previously short, the tendency is to a rise in price in the long market, a fall in the short market and a settling of the general price level above its previous average. It does not follow then that the denial of the existence of the right to sell or buy below the seller's cost is a limitation upon the freedom of competition.

Cutting selling price below cost is impairment of the seller's capital and nothing else. It is pouring out of the reservoir more than is taken in. In economics as in physics, this means the emptying of the reservoir, the exhaustion of capital. It means absolutely inevitable bankruptcy to the one who practices it unless the deficiency can be offset by a more than equal gain elsewhere. There is one fact of which all competitors and the consumers can be absolutely certain. The habitual seller below cost who continues in business for any considerable period, is receiving from the consumer by other means more than enough to offset his losses. Or he will do so as soon as his practice has sufficiently suppressed competition and established what is equivalent to monopoly. When the consumer learns the simple fact that business cannot be conducted at a loss, he will awake to the startling realization that nothing which he buys at a price below its cost represents a saving. And he or she will also learn that a

premium article is a most expensive piece of decoration.

Applying the Principle to More Than One Line

While this process of reasoning seems fairly simple when applied to single lines, it seems to lead into complexities when it is laid down upon a combination of many lines in which there is present the opportunity to compensate price cutting losses by more than corresponding gains. But the complexities disappear if the principle is kept clearly in mind.

Two men conduct shoe stores in a certain town. In free and fair competition neither can habitually sell any line of shoes at less than the seller's cost. One buys out the other and conducts both stores as one establishment. Has he gained thereby any right which he did not have when operating but one store? Clearly not. What could be the source or origin of such a right? Buying the other store he succeeded only to the rights which its previous owner had and in the operation of both stores, the single owner is subject to precisely the same limitations as when he owned but one store. He may not in either store sell any line at less than the cost of that line without violating the principles of free and fair competition. By the same process of reasoning, he may not conduct one store at a loss and counterbalance those losses by gains from the other.

Here is the crux of the whole price cutting matter. The single line seller who sells below cost is quickly and simply removed from business by the laws of mathematics and his creditors. But the field of business is harassed and frenzied by the dealer who has the power to recoup losses sustained by selling one or more lines below cost by compensatory gains on the remainder of his business.

The practice has not been generally recognized for what it is nor has it been given the universal condemnation which it deserves. Its seeming advantages to those who are possessed of the power to use it, its seeming attractiveness to those who deal with them, have secured for the practice a condonation which has endured too long.

No one abuse of competitive methods is in my opinion, responsible for more efforts on the part of those who suffer from it, to escape its effects by unlawful agreements than this practice of conducting some part of a business at a loss with a compensatory gain in the remainder and a profit in the whole. There is no escape for the competitor in the single line in which the loss is taken but an unlawful group action. And naturally he prefers his chances under the anti-trust laws to the certainty of bankruptcy.

Starting Point of Selling Operations

The starting point of all operations against selling below cost must be proper cost accounting by each individual. Common cost figures, group averages, normal costs and all averages or group allowances, play no part in this

work. What is to be determined is the cost to the seller, not to someone else nor what cost would be to the seller if his conditions were changed. Education in accounting methods, the inspiration to use them and to work by the result shown, these are great opportunities for trade associations. But every suggestion which opens the way to the individual to adopt a standard, a normal, an average which does not reflect the individual's cost, is a deterrent to cost accounting and an inducement not to use it.

No movement within an industry for the elimination of sales below cost can be conducted except in conjunction with and as a part of a campaign for the employment of a proper system of cost accounting. Nor can any movement to suppress sales below cost be put into operation except upon a cost accounting basis. It is easy to condemn selling below cost, it is not difficult to see wherein its evils lie nor is it particularly troublesome to perceive that it may be unlawful in habitual practice. But the proof of the charge is the re-

lentless analysis of the actual cost of the operations preceding sale.

The elimination of sales below cost by no means implies a stabilization of prices nor a uniformity of prices. It is when properly applied in no sense a restraint upon competition. Costs will vary and prices should vary as costs vary within market limitations. But the application of the principle "no sales below cost" by each to his own business is simply the recognition and adoption of the fundamental principle of the competitive system.

President of Food Brokers' Association Discusses Business Relationships

JAMES L. FORD, JR., president National Food Brokers' Association, addressed the National Wholesale Grocers' Association in part as follows:

"I deem it a great honor to have the privilege of speaking to this group, and I recognize that this privilege comes to me, not for any personal reason, but because I represent another great group of business men. I refer to the members of the National Food Brokers' Association and when I speak of them, gentlemen, I refer to men who are more closely related to you in a business way, and I think I may add, in many instances in a personal way, than are any other men with whom you come in contact, so that our two associations are more closely bound together than is usual in business life. The tie that binds has endured the acid test of both prosperity and adversity and I know not which brings a greater wrench to the commercial body, for each gives rise to a distorted vision and each gives birth to radical ideas. You endured the fevered paper prosperity of war under the most stringent regulations with which an industry was ever shackled. You witnessed the illogical reversal of all known laws of trade, for which you knew you would pay the penalty later, in that you were not permitted to accumulate a surplus with which to pay the penalty. Your response was a patriotic demonstration that showed a spirit of sacrifice that other industries were not called upon to endure. You stood the test and the brokers of the country stood it with you.

The After-War Depression

"The second stage was paying the penalty, the standing of more than your share of the burden of a war torn world, for which you were left unprepared, so that you have had two years of depression. You have witnessed the wrecks of business, the pull on the heart strings of those men who suffered not through their own lack of ability but because they were caught in the whirlwinds and eddies that followed the tornado of destruction. I am looking men in the face in this hall who have shown as great a moral courage as men are called on to face. You stood the test and so did we and who is there to say that we will not pull safely into port,

and when I say 'we,' gentlemen, I mean it, for I am one who holds that the wholesale grocer and the broker must stand or fall together and I have sufficient knowledge of the service rendered by each to know that we will stand and that we will not fall.

"Your great problem is the carrying of this splendid service through to the retailer, so that he will become a merchant and not a depot where you have deposited your goods and where I waits for the consumer to come and buy them. Turn the attention of the brains of wholesale trade to assist him to meet his more efficient competitors. Your goods are not sold until he sells them and I have studied your problem because it is my problem.

"I think it would be of value to any wholesale grocer or to any group in any particular market to study retail merchandising and then sell that knowledge to the retailer with the merchandise. You are efficient and you work for a low wage, make the retailer efficient so that your approach through him to the consumer does not meet with resistance and your position is unassailable.

Problem of the Broker

"The broker also has his problems. The broker feels that he renders a service and one for which he receives no compensation unless he makes a sale—and then he receives it from the seller. I am not afraid to meet any issue which questions the service rendered by the broker. I told our legislators at Washington, and I told your fellow wholesale grocers from the South at their convention that we render the wholesale grocers a most valuable service for which we receive no direct compensation. If you question it go into any aggressive and competent brokerage office in this country and learn what it would cost you to maintain an intelligence department that would keep its fingers on the pulse of the world markets and then stop to consider that you are furnished this service without charge through our system of merchandise brokerage business in this country. No one can deny the value of this service and no one can offer an efficient substitute for it.

"The canners and wholesale shippers also have their problems and their

problems are our problems.

"The man who has a vision today of conflict between buyer and seller, has a backward vision and one not in keeping with modern business. There is no real conflict between buyer and seller. We are in the same business—the supplying of food to this nation. It is the biggest business in this country and has more to do with the public welfare than has any other. We owe it to ourselves and our country to function efficiently and well in our respective fields. We are separate links in the chain of distribution but we cannot function as separate links, for the chain would be a worthless thing and the disconnected links would become shackles.

"I propose the formation of a trade council made up of representatives of each—men who can and will get together and I predict a greater advance into the future in a constructive way for the betterment of all. The cry of 'One for all and all for one' may sound Utopian but even measured by cold business calculations it is sound, for he who builds for himself only, to the detriment of others, cannot and should not survive."

Discussion of Antiscorbutic Values of Milk

In experiments on the "Comparative Antiscorbutic Values of Milk," by J. M. Johnson, chemist, and C. W. Hooper, pathologic physiologist, United States Public Health Service, the results of which appeared in a recent issue of the Public Health Reports, it was concluded by the authors that:

"The antiscorbutic vitamin in fresh milk is not very great and is injured by the process of drying.

"Scurvy can not be determined positively except by a histological examination of the costochondral junctions.

"It is not wise to depend upon certified milk alone to prevent scurvy. Strong antiscorbutic material, like orange juice, should be added. One particular brand of dried milk powder appears to have retained a large amount of its original antiscorbutic substance. This is not due to the process used, as other brands made by the same process by the same company are deficient in antiscorbutic substance. It may be due to the extreme care in preparing this particular brand."

Margarin Manufacturers Hold Annual Meeting

See Need for Educational Work to Show Housewife the Food Value of Their Product—Several Important Addresses

THE third annual convention of the Institute of Margarin Manufacturers was held at the Hotel Statler, Detroit, May 24 and 25. Officers were all re-elected for the coming year. Addresses were made during the two day meeting by Dr. Casimir Funk, associate in biochemistry, College of Physicians and Surgeons, Columbia University, which appears in full elsewhere in this issue; Dr. H. E. Howe, editor, Journal of Industrial and Engineering Chemistry, Washington, on "Scientific Research as an Association Activity"; Dr. W. W. Skinner, assistant chief, Bureau of Chemistry, Department of Agriculture, Washington, on the "Relation of Industry to Scientific Investigations"; Dr. E. P. Schaffter, inspector in charge, Bureau of Animal Industry, Department of Agriculture in Detroit, who spoke on "Federal Meat Inspection Service Applicable to Oleomargarine"; W. D. Martin, Swift & Company, Chicago, who discussed "Constructive Salesmanship"; Mrs. Helen Downing, of the Home Economics Department, Armour & Company, Chicago, whose address dealt with educational propaganda, directed largely toward women as a means of informing the public upon oleomargarine. E. P. Kelly, Capital City Products Company, Columbus, Ohio, president of the institute, reviewed the events of the past year, presenting the facts of the margarin industry in a constructive and impartial manner.

The President's Address

"The margarin consumption of the country," said President Kelly, "during the past two years, has gradually been falling off, and there are many reasons to be assigned for this. However, you are well acquainted with most of these facts and I will not endeavor to go into detail. There are a few facts, however, which may be of interest to you.

Export Business in 1920

"Our export business in 1920 was 8,000,435 pounds; in 1921, 3,000,495 pounds; in 1922, for six months, 1,100,000 pounds; in 1920 we produced 387,900,000 pounds of oleomargarine; in 1921, 280,166,000 pounds; in 1922, for six months, 100,414,000 pounds.

"On the other hand, the creamery butter production in 1920 was 744,000,000 pounds; in 1921, 935,000,000 pounds; in 1922, six months, 526,000,000 lbs. Besides these creamery butter statistics, figures show we have produced in this country at the present time farm or dairy butter to the extent of from 600,000,000 pounds to 800,000,000 pounds per year.

"You can readily see, from these fig-

Officers and Executive Committee of Margarin Institute

President: E. P. Kelly, Columbus, O.
First Vice-President: B. S. Pearsall, Elgin, Ill.

Second Vice-President: H. H. Kamsler, Chicago.

Treasurer: E. A. Stevenson, New York.

Recording Secretary: Howard Beatty, Chicago.

Secretary: J. S. Abbott, Washington, D. C.

Executive Committee

E. P. Kelly, Columbus, O., Chairman
B. S. Pearsall, Elgin, Ill.

Howard Beatty, Chicago.

W. C. Potter, Chicago.

James A. Flagg, Jamaica Plain, Mass.

George T. Moxley, Chicago.

ures, that the butter production is climbing in about the same proportion that margarin is falling off.

"The first nine months of our fiscal year, as compared with the last fiscal year, show an approximate loss of about 40 per cent in production, which will bring the total production for the year very close to 200,000,000 pounds.

"Canada is now talking about stopping the importation and the manufacture of margarin after September 1, 1922. Foreign manufacturers are also feeling the effects of this decided slump in business and are manufacturing a great deal less margarin than formerly. "While the prices of margarin have declined 50 per cent or better since the peak, butter prices have also declined in the same proportion, and it is very evident that the price of butter has entered very seriously into the consumption of margarin.

"Margarin manufacturers, also, have maintained their high scale of wages and have kept their organizations fairly well together in the hopes that business would increase. Vegetable oils have been extremely high for the last two years. Railroad rates have entered materially into our price and cost of production, and we did not enjoy the 10 per cent reduction given to butter January 1, last year, by the Interstate Commerce Commission. All of these items are factors in our cost price and keep it higher than it should be, and we are hoping that some reduction will come in cost which will allow the manufacturers to make margarin at a low price and still make a substantial profit.

The number of margarin factories in 1914 were 30; in 1920, there were 73, and, at the present time, there are 69; therefore, with the smaller production, this production is divided up among more factories.

Activities of the Dairy Interests

The dairy interests have been very active against us this year. The Dairymen's League Co-operative Association, Inc., spent \$350,000 last year advertising dairy products. The National Dairy Council spent \$85,000 in 10 months last year. The Producers Dairy Company, of Brockton, Mass., spent \$1,000 to \$5,000 per month last year. Altogether, one national association, one district association and one local association of those engaged in the dairy products business in the United States last year spent about a half million dollars in advertising their products. Multiply that by the total number of local, district, state and national associations of this kind in the United States, and the total is a very handsome advertising appropriation. Add to this the cost of the advertising and public expense carried on by the United States Department of Agriculture and the State Agricultural Colleges, and you have a very large fund spent for advertising dairy products. These are just a few of the unpleasant phases of our industry. On the other hand, there are many phases that are encouraging to sane minds and stout hearts.

Encouraging Phases

"Notwithstanding the low production last year and lower production this year, we will still be many million pounds ahead of any year prior to the war. That is a phase of the business that should strengthen our hopes for the future, and if we are successful in combating many of the unfortunate conditions in our business, there is no reason why we should not all emerge from this in better shape and enjoy the same measure of prosperity that we have had in past years.

"The Institute, during its short existence, either alone or in co-operation with others in the industry, has performed many valuable services for its members, as well as for the industry as a whole. We have endeavored, by means of letters, bulletins and personal conferences, to keep constantly in touch with all of our members and keep them advised of the activities of the Institute. I am going to give you a short summary of what it has done and what it has been trying to do for its members and for the industry as a whole.

"The executive committee, at its first

meeting, decided there were three things really necessary to lay the foundation of a better and bigger business for the margarin manufacturers.

"First, the improvement of the product and the elimination of any derogatory advertising against the different kinds of margarin or the different manufacturers.

"Second, an advertising campaign of some kind to educate and enlighten the people of the country on the food value and palatability of margarin.

"Third, an aggressive stand against any legislation harmful to our industry and the elimination, wherever possible, of useless and annoying regulations.

"We decided to use our energies more on the third paragraph of our program, because of the constant activity of the various legislatures and dairy councils against our product, and, also, because of the threatened revision of regulations No. 9, under which all manufacturers do business.

"However, in order to take care of the first two propositions, the standards committee and the publicity committee were appointed.

"The standards committee prepared a report, which was sent to all of the members, and has functioned very efficiently on several occasions, in eliminating some of the troubles between different manufacturers.

"The publicity committee has been in the unenviable position of being a committee without any funds or plan of work. However, investigation showed us that it would be useless for us, as an Institute, to make a large expenditure of money for educational advertising, because of the lack of available literature on our subject, margarin.

Preparation of Bulletins

"Therefore, the publicity committee, with the assistance of Dr. Abbott, prepared several bulletins: No. 1, entitled 'The Vitamin Doctrine in the Oleomargarine Industry,' by Dr. W. D. Richardson; bulletin No. 2, entitled 'The Food Value of Oleomargarine,' by Dr. J. S. Abbott, and bulletin No. 3, entitled 'The Importance of the Oleomargarine Industry to American Agriculture,' by Dr. J. S. Abbott. These bulletins have been mailed to those who, by reason of training and official position are the natural sources of information on matters of nutrition. They have been sent to teachers of home economics in our schools, colleges, normal schools and universities and to the libraries of such schools. They have been sent to dietitians, and city, state and federal food and health officials, scientific journals, etc. In addition, the proceedings of our second annual convention were published and mailed to the libraries of the Agricultural Colleges of the United States.

"This is the first effort of our industry in any way to give the American people complete information about our product or various phases of same.

Insert in Margarin Packages

"Over 2,000,000 copies of an insert on the food value of margarin in comparison to butter and other foods, entitled 'Facts About Oleomargarine No. 1,' approved by the United States Department of Agriculture, have been sent to housewives in packages of margarin. This insert clearly states that the digestibility of butter and margarin are the same.

"This, with various articles by Dr. Abbott in trade journals and other publications, practically covers what has been accomplished by the Institute in publicity matters.

Legislative Activities

"On the legislative end, the Institute has been much more active, and we have been successful in smoothing out many of the difficulties of the different manufacturers. We have also endeavored, by means of correspondence and personal interviews, to protect the margarin industry from misrepresentation and selfish propaganda.

"The two outstanding accomplishments of the Institute in its legislative program are the changing of the New York law, whereby margarin manufacturers are no longer required to stamp the word 'oleomargarine' on prints or to seal such prints by bands. This law was a costly one to the manufacturers who sold in New York, and we are greatly elated that we were able to have such a fine hearing before the agricultural committee and to have our ideas adopted.

"A bill was introduced in Maryland, during the last few months, designed to kill the oleomargarine industry in that state, and this measure was patterned after the Pennsylvania margarin law. Several members of the Institute and some civic organizations opposed this measure and were successful in having it killed, in spite of the fact that the National Dairy Union and all the other allied dairy organizations were there to urge its passage.

"Members of the Executive Committee, the President and Dr. Abbott appeared before the Interstate Commerce Commission in a formal hearing in behalf of a 10 per cent reduction in margarin freight rates, the same as given to butter last January, and we have every reason to believe that this 10 per cent reduction will eventually be granted us.

Regulations Regarding Chain Stores

"You are all familiar with the provisions of the regulations promulgated by the Bureau of Internal Revenue last winter, regarding chain stores. This measure would have imposed unnecessary expense and a huge burden on the management of such stores and would have worked against us in the sale of margarin to such organizations.

"This regulation has been recalled pending the final revision of regulations No. 9. The Bureau of Internal Revenue has decided to revise regulations No. 9, under which all margarin manufacturers do business. These regulations were issued in 1907, and many

of them are out of date and out of joint with the changed conditions in the margarin industry. We all agree that they should be revised and brought up to date, but we want them revised in the proper way and as favorably as possible to the margarin manufacturers.

Protecting the Interests of the Institute

"The president, ex-president and Mr. Flagg have made several trips to Washington for the purpose of discussing these regulations with the Bureau and to protect the interests of the Institute in this matter, as well as in some other matters. We believe now that the Bureau of Internal Revenue has a clearer understanding and a more friendly spirit toward the margarin industry than existed several months ago, and we hope that this will bring about a revision of regulations which will be of benefit to the industry.

Recognition from Federal Bureaus

"We are gradually getting recognition from all of the bureaus. A recent letter from the Chief of the Bureau of Chemistry to the Institute, concerning matters of labeling margarin, indicates a sympathetic attitude on the part of that branch of the government towards this industry and a desire on their part to co-operate with the association and manufacturers in matters of law administration.

"It is respectfully suggested, therefore, that you let the Institute continue to be your representative in all matters connected with the State and Federal agencies, and we will gradually establish a clearing-house through which all matters can be taken up, thus saving time, worry and expense to individual members.

Service Rendered by Executive Committee

"The president desires to thank most cordially all of the members of the executive committee who have closely co-operated with him in the management of the Institute during the past year. Each member of this committee has given freely of his time and money in looking after the business of the Institute. Several members of the committee, with the president, have made trips to Washington at various times in the interest of the Institute, and in order to promote the welfare of same. The executive committee has met seven times during the year to discuss problems pertinent to the industry, but, because of the nature of many of these problems, we were unable to tell our members, and the results of much of the committee's work are yet to be published.

"The president also desires to thank several of the non-members of the Institute, who have aided our work by having representatives present at some of the meetings in which legislative and other matters were discussed. These friends helped to formulate plans for presenting data to proper officials.

"It is believed that enough has already been accomplished by the Insti-

tute to justify its expense and a continuation of its efforts along established and along new lines. There are still many margarin laws that are unjust, discriminatory and expensive. These should be repealed or revised. There will be future efforts made to destroy the industry by still further discriminatory and unjust legislation. There will continue to be efforts made to cripple the industry by unnecessary legislation. Our industry must be protected against such efforts. Our Institute must protect its members and the whole industry against vicious and scandalous propaganda.

"The Institute should tell the American people that the oleomargarine industry is one link in the chain of agencies that are making a market for American farm products. It should tell them that any effort to kill this industry is an effort by one class of American farmers to kill the product of another class.

"By continued co-operation, we can accomplish these things, and make our industry bigger and better for all."

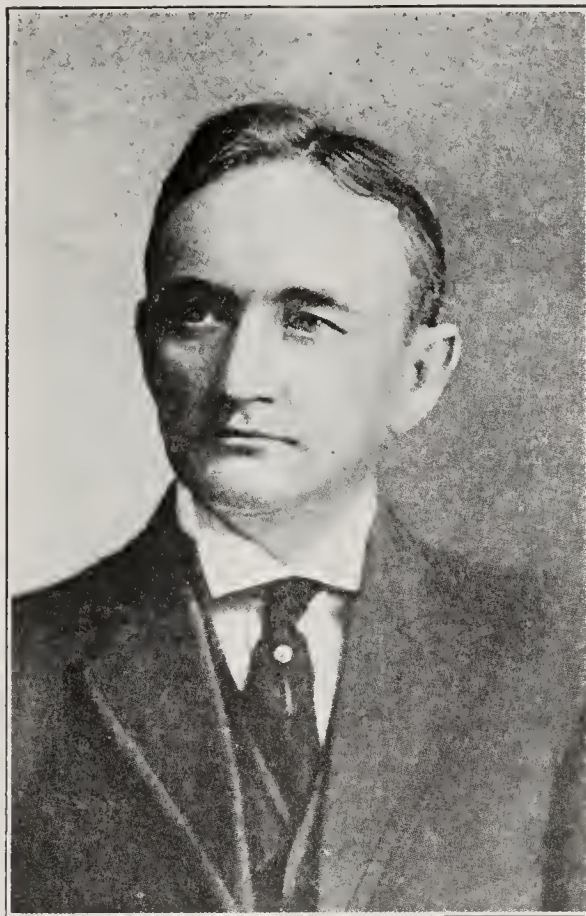
Address of Dr. H. E. Howe

Dr. H. E. Howe, editor, Journal of Industrial and Engineering Chemistry, in advocating "Scientific Research as an Association Activity," pointed out that during the past few years some business men have been signally successful because they have seen the advantages of an alliance with science, while others have stood by, marveling at their success, but blind to their example.

"I have always argued," said Dr. Howe, "that to gain the greatest benefit from applied science, individual manufacturers should establish their own research and control laboratories. These laboratories should be well equipped and manned, made attractive places to work, be adequately supported and genuinely considered an intimate, integral, internal part of the organization." A laboratory, Dr. Howe pointed out, can become more important than the sales department or the advertising department.

"Every industry," he said, "finds it necessary to engage upon fundamental work, work in the field of pure science, upon which the so-called practical work or technology depends. Occasionally, indeed often, industrial laboratories undertake this work on their own account, but we are coming to appreciate more and more that these are common problems." The results should not be left unpublished. Fundamental data, he pointed out, can be applied in the way suited to the problems of the individual concerns without detriment to the interests of the others, since the organization best equipped with scientific men is in position to gain the most from the new knowledge. An appreciation of these facts has led trade associations to engage upon programs of scientific research, and indeed some associations have been formed for no other purpose."

Dr. Howe referred to Great Britain,



Dr. J. S. Abbott, Secretary Institute of Margarin Manufacturers

as perhaps the place where the greatest publicity has been given to the formation of trade research associations. He pointed out that the British were impressed with the advantage gained by Germany in the early part of the war through her organization of scientific men and that they determined to set up an advisory council of scientific research. Results from the work of the Council were so important that it has become a department of the government, known as the Department of Scientific and Industrial Research, answerable to one of the ministers. The British Government has also set aside £1,000,000 to encourage trade associations to put money into the work of organization, laboratory equipment and staff. More than twenty-five associations have been formed in this way on a pound for pound basis.

Trade Associations in America

In America, said Dr. Howe, it has seemed best for trade associations to conduct their scientific activities without the aid of government money, for with the use of public funds there is a certain amount of necessary control which may become irksome. He pointed out that in general, trade associations have been formed without regard to scientific work and have undertaken this work only after a long period of education.

Dr. Howe stated that a number of associations have begun their work with standardization and as proof of its real value he mentioned the Glass Container Association, which, when its laboratory undertook standardization, found two hundred and ten styles and sizes of prescription bottles alone. These were reduced to 20 without inconvenience or loss of business. He also pointed to the laboratory main-

tained by the California Fruit Growers' Exchange, which, in addition to the problems of profitable utilization of the portion of the fruit crop that will not stand a long haul, studies problems of insecticides, fungicides and other phases of fruit growing, utilization and transportation. He also spoke of the success of the laboratory of the National Canners' Association, the work of the Container Club, National Society of Corrugated and Fibre Box Manufacturers, American Institute of Baking, Biscuit and Cracker Manufacturers, Interstate Cottonseed Crushers' Association, American Institute of Meat Packers, Association of Macaroni Manufacturers and others.

Work of the Bureau of Chemistry

Work of the Bureau of Chemistry in the investigation of fats and vegetable oils was briefly outlined by Dr. W. W. Skinner, assistant chief, Bureau of Chemistry. Dr. Skinner made special reference to the refined products which enter into or which are suitable for food.

"We are just beginning to understand fully the great importance of fat in metabolism and its relation to a proper ration," he said. "A failure to fully appreciate this fact was one of the miscalculations of the German militarists in preparation for the great war."

Shortly after the beginning of the war it became evident what an important aspect an adequate supply of oil was to assume. The Germans undoubtedly thought animal fat could be depended upon to fulfill their needs, since German agricultural development for years had been deliberately and purposely devoted to the production and development of crops rich in carbohydrates. The error was soon discovered, but try as they might the Germans never were able to supply the deficiency and the lack of fats and oils had a direct and important influence on the final outcome.

Importance of Knowing Composition of Raw Products

It has been demonstrated time and time again, said Dr. Skinner, that it is very important for the industry concerned to know as completely as possible the composition of its raw and finished products. Many industries have been seriously hampered and their development retarded until they have obtained this knowledge.

Study of Available Data

A critical study of available data shows that the composition of most oils has not been satisfactorily determined. The data, for instance, is very contradictory in regard to the nature and proportions of the fatty acids in oils. Dr. Skinner pointed out that in the laboratory of the Bureau of Chemistry quantitative determinations have been made with great accuracy of the fatty acids of cottonseed oil of Spanish and Virginia peanut oil, corn, soya bean, sunflower seed and several less important oils.

As an example of the direct commer-

cial value of these investigations Dr. Skinner stated that the annual production of crude cottonseed oil of which seven to eight per cent is the average loss in refining, is about 1,400,000,000 pounds, so that a saving in this loss of only 1 per cent would represent 14,000,000 pounds.

Explaining the two general methods of extracting vegetable oils on a commercial basis, Dr. Skinner said: "The most common method is to subject the seeds or nuts to a high pressure in a hydraulic press or a continuous acting expeller press. The other method is to dissolve the oil out of the material in which it occurs with a suitable solvent, usually low-boiling gasoline, and then evaporate or distil the solvent from the oil. The second method extracts the oil more completely.

"I am informed that there are several mills in this country using this method for some technical oils but it is not favored as much here as in Europe where the method is apparently satisfactory for food oils. It is the opinion of some connected with the oil industry that it will in time supplant the pressure method."

Conditions Prior to 1914

Continuing, Dr. Skinner stated that prior to 1914 very little peanut oil was produced in the United States, but compared with 450,000 pounds in 1912, the production in 1917 and 1918 was 50,000,000 pounds, while imports increased from 7,600,000,000 pounds to 27,400,000 pounds. Because of the difficulties encountered since the war by the vegetable oil industry the virgin oil is not being extensively produced in this country at present, but it is hoped that the industry may soon be revived. One former bad practice of American mills is believed to have been eliminated, that is, the practice of pressing peanuts without previously shelling them. This method resulted in a loss of oil which was absorbed by the shell and rendered

the press cake unfit for human consumption.

"To supplement our supply of fats and oils many new possible sources of oil have been investigated," said Dr. Skinner. He referred particularly to tomato seed, a waste product in the manufacture of catsup and tomato soup, which pressed, yields about eighteen per cent and when extracted by solvent yields twenty to twenty-two per cent. The sunflower was shown to be a possible commercial source of oil, the cold-pressed oil being valuable for culinary purposes while the hot pressed may be used in making Russian varnishes and soaps. Large quantities of okra seed could be produced yearly and this yields about eighteen per cent oil. The plant is of the same family as the cotton plant and the oil resembles cottonseed oil. Cohune nut oil, obtained from the fruit of a variety of palm tree growing in Central and South America is another possible source.

Dr. Skinner concluded by referring to the work of the Bureau of Chemistry in industrial research and said that although there had been some evidence of hostility to a greater development of scientific activities on the part of government bureaus, he thought it was due to a failure to understand the functions of the scientific bureaus and the part they should play in the industrial development of the nation.

Addresses of Helen H. Downing

"Education is your best weapon, and I speak from the knowledge that comes from constant contact with home economics instructors, housewives, and with writers on food subjects," said Helen H. Downing, of the Department of Food Economics, Armour & Company. "Naturally, the best way to carry on that educational work is through publicity in all of its various forms."

She pointed out that publicity is being carried out today by home demon-

stration agents of the government, by speakers at women's clubs, by women's magazines, home economics departments in schools and colleges and in the women's sections of newspapers. All of these offer wide avenues through which educational material can flow into the home.

Miss Downing recently sent out about 3,000 letters to teachers of home economics in colleges and universities, dietitians in hospitals, hotels and other institutions and to some housewives, from which she received a large percentage of answers. The letter dealt with advertising and the replies not only suggested that nationally advertised products should have better illustrations but criticized the English, construction and appearance of the advertising.

The speaker pointed out that one reason for the existing prejudice against margarin is the lack of national advertising. Women, she said, look at national advertising as a guarantee of quality and wholesomeness.

Methods of Advertising

Another method of advertising advocated by Miss Downing was the encouragement of visitors to factories. She added that the greatest number of women she had ever seen interested in margarin at one time was just after a women's club had concluded a trip through a plant where oleomargarine was being made.

Miss Downing urged that at expositions where manufacturers have booths, the children should be considered, as they are the future customers. She also pointed out that the apathy of the State food and dairy commissioners must be removed in order that educational propaganda may be spread efficiently. Direct mail advertising was also urged. This should take appealing form interesting the housewife sufficiently to read the letters and other material.

Food Institute of New Jersey Discusses Milk Products

THIRTY members and guests of the Food Institute of New Jersey met at dinner in Newark on the evening of May 22 for the purpose of considering various phases of the milk situation. This was the second meeting of the Institute. Samuel Mueller, president of the Institute, presided and Dr. Frederic Dannerth, secretary-treasurer, read reports and contributed to the discussion.

First on the program of addresses was that of Dr. Harry W. Redfield of the U. S. Bureau of Chemistry. Dr. Redfield gave a paper outlining the work of the bureau, as relating to milk.

Dr. Casimir Funk, the first research expert to formulate the theory of vitamins in nutrition, spoke on the possibilities of modifying natural foods, with special reference to milk and milk products.

Dr. C. W. Larson of the U. S. Bureau of Animal Industry read a paper on the dairy industry of the country. This was illustrated by charts.

Winifred Stuart Gibbs, associate editor of *The American Food Journal*, read a brief paper on the place of the dietitian on a constructive health program. Miss Gibbs emphasized the value of scientific information in a sales program.

At the close of the addresses various members and guests took part in the discussion. The following resolution was adopted:

Whereas the Food Products Institute of New Jersey has been organized to promote the general welfare of the food producing industries of the State, and to provide means whereby its members may co-operate to their mutual advantage

Be it Resolved, That this institute offer to the directors of the Depart-

ment of Health, the Department of Conservation and Development and the Department of Agriculture of the State of New Jersey the facilities of this Institute. 1. In the enactment of legislation which shall truly protect the health, as well as promote the welfare and happiness of the people of this commonwealth.

2. In the preparation of statistics which shall better acquaint food manufacturers with the edible raw materials available within the state.

3. In the maintenance of proper sanitary conditions in all establishments in this State where food is canned, manufactured or prepared.

4. In the preparation of an authentic list or index of all establishments in the State which manipulate food in any form.

Be it Further Resolved, That a copy of this resolution be presented to the Directors of the Departments mentioned and to the U. S. Senators representing this State in Washington.

THE CONFERENCE TABLE

A Means by Which the Manufacturers, Consumer, Research Worker and Educator May Discuss Their Common Problems

By WINIFRED STUART GIBBS

THE American Food Journal cordially invites food manufacturers, consumers, technicians and educators to gather round its Conference Table. Each of these groups has to its credit brilliant results of good work well done. Our plan is to help in a systematic program of co-ordination of activities, so that each specialist may go back to his own domain, whether factory, kitchen laboratory, nutrition laboratory, or class room, fired afresh by a sense of kinship with all who labor in this fascinating field of food.

We plan to spread the Conference Table each month, and all who sit in should carry away much that will be of value, even as they will have contributed much.

The manufacturer will be invited to help us build a department that will in time come to be a recognized clearing house for the BEST ideas on food selling.

The consumer or housekeeper will be asked to show how she helps to make the wheels go round in factory, laboratory or class room. For does she not, in her kitchen laboratory convert the manufacturer's food products into fuel for the active bodies of manufacturer, technician and educator alike? Furthermore, she can hold up the hands of the manufacturer in his efforts to make of his business a strong factor in community progress. We hope to offer definite suggestions from representative women on this important type of co-operation.

THEN there is the technician, that busy wizard of the food laboratory; already he is showing that he is a good fellow as well as scientist. In the pages of The American Food Journal and other publications, at conferences with food manufacturers, in many places where food workers congregate we find this servant of science ready to share his knowledge. For this man we hope to provide means of multiplying many-fold the avenues of approach, so that by developing slowly and carefully a program of concerted action an increasing number of those interested will benefit from the results of the scientists' work. There is much popular confusion in regard to diet, and we hope to make the Conference Table a place where this may, in large measure, be cleared up.

Finally, the educator who sits at the

Conference Table will meet the members of the other groups on a new and broad platform. Many lines of work are included in this group, class room instructor, home economist, hospital dietitian—these are but a few of the specialists working in the field. The food educator has already earned the right to be called the right hand man of the manufacturer! Well known educators will be asked to come to the Conference Table, prepared to suggest new lines of co-operation between members of their profession and manufacturers.

NOW as to the part of The American Food Journal in this team work!

It will be our province to gather up the threads, weaving them into a strong fabric, something that will be of service to all concerned.

Not long since The Bookseller and Stationer, our neighbor and co-worker in the field of trade publications, said editorially:

"There is something personal about the book business * * * is there any other business in which one forms such friendships? You can not wax really eloquent over the selling of an onion or an oyster stew * * * nor yet of a side of bacon."

Perhaps not, per se, still, although the food trade may not be essentially personal, it is sublimely racial! It is conceivable that the dextrose and ash in the onion, the easily digested fat in a rasher of bacon might so enter into a properly planned dietary as to contribute, though ever so slightly, to the enjoyment of books or any other commodity on the market. As to the matter of friendship, it is universally granted that, without good food there can be but little growth, whether physical, intellectual or spiritual.

So, we are dealing with a commodity that bears an absolutely fundamental relation to all the activities of life.

BY way of slogan for Conference Table, we suggest, "Ask the A F J!"

Do you seek the latest information on packing, marketing and selling food? Ask the A F J.

Would it help you to have suggestions on establishing a community food forum? Ask the A F J.

Should you like to be kept in touch with the manufacturing and educational fields, that you may see how your lab-

oratory findings are affecting the food world? Ask the A F J.

Are you in search of live material that will aid you in keeping your home economics courses abreast of the times? Ask the A F J.

Among the special features for the Conference Table in July will be three brief articles: "The Food Manufacturer and the Community"; "How a Housekeeper Would Sell Food," and "New Features for Classes in Dietetics."

Teachers' College Takes the Lead in Establishing Consumer Co-operation

THAT the housewife and the butcher may be of mutual service was shown at a recent food forum held at Teachers' College, Columbia University. This conference was one of a series established by Professor Van Arsdale, head of the Department of Foods and Cookery, a series that is proving valuable to distributor, consumer and educator alike.

George Kramer of Ye Old New York Branch United Master Butchers of America was the speaker at the conference on meat. The audience was made up of housewives and educators interested in developing new ideas for their classes in home economics.

Mr. Kramer gave a demonstration of meat cutting, showing how a side of beef is prepared for the market.

The speaker showed that the average housewife knows little of meat beyond the favorite porterhouse, sirloin, round, prime rib roasts, with occasional shin and chuck. According to Mr. Kramer, rump, plate, navel, brisket, shoulder and flank are seldom purchased, while these less popular cuts make up about two-thirds of the entire animal.

Housewives were asked to consider the fact that the butcher must sell approximately two-thirds of his wares at a price but little above cost, and that as a result, he must offer the remaining or choice third at a rate sufficiently high to insure a reasonable profit to himself.

In commenting on the above, Day Monroe, Professor Van Arsdale's associate said, in part, "The only way to reduce the price of steaks and prime rib roasts is to use the other cuts more frequently so that there will be a steady demand for the whole side of beef."

EDITORIAL

Short Sighted Policy of the National Dairy Union Regarding Filled Milk

IT is sometimes difficult, but, where public welfare is involved, worth while, to attempt to lighten the eyes of those who are blind to their own best interests. Especially is this true of the National Dairy Union in its attitude toward filled milk products.

After a vigorous campaign, in the course of which the Union called upon all citizens to outlaw filled milk, it has succeeded in bringing about the passage of the Voigt Bill (H. R. 8086). During the campaign we were assured that failure to pass the bill would bring about untold injury to public health. This statement is based, it would seem, solely on the fact that the vitamin content of filled milk is negligible. Apparently there are no indications of the presence of injurious substances.

Another point emphasized by the Union was the need for protecting dairy and farming interests.

The American Food Journal submits that the subject of vitamins as related to human nutrition has yet to be developed. Experts have established, however, that if we include certain protective foods in our daily diet we may offset the deficiencies of any one food simply by selecting others from lists furnished us by the food specialists. For example, the fat soluble vitamin found in whole milk is present also in butter fat, in egg yolk and in certain vegetable substances. This fact, it would seem, disposes of the first objection.

As to the second point, the protection of dairy interests, a more careful analysis might bring to light facts not at first apparent.

The enlightened American farmer knows that he gains nothing for his own case through "knocking" the product of some one else. If we accept the old, though unscientifically stated truth that "half a loaf is better than no bread," may we not also accept a paraphrase and say, "Half a quart is better than no milk."

In other words, during these days of reconstruction, not every income is equal to purchasing large quantities of whole milk, important as is this food. Is it not desirable, when economy is necessary, to first make sure that children and invalids have the full requirements of whole milk, and then to use a wholesome substitute for adults who may make up any dietary deficiencies by means of other foods?

The National Grange is also in favor of forbidding the manufacture of filled milk.

To each of these organizations we say:

The American Food Journal believes that intelligent co-operation with the manufacturer of filled milk will result in good, not harm to the dairy interests; that the public will continue to demand fresh whole milk, and, in so far as able, will purchase the same, that the manufacture of filled milk will help to meet an economic problem, without complicating in any degree the problem of child nutrition and growth.

The Key Man in Educational Advertising

THE research worker is the key man in educational advertising. He is our fountain head of authoritative information as well as our court of final appeal in cases of dispute.

Not the least of the many services this worker is equipped to render is that of helping to standardize methods of conducting so-called "feeding experiments."

The field of nutrition work is a fascinating one and it sometimes happens that earnest souls are lured into its activities with little or no understanding of scientific methods. This means that in spite of abundant enthusiasm, these workers often times do justice neither to themselves nor to the subject in hand.

A case in point is that of a recent experiment instituted for the purpose of making a comparison between margarin and butter.

To conduct such an experiment with any degree of accuracy, certain factors should be carefully considered. These are:

1. The group should be large enough to provide what is known by the statistician as a "sample," the minimum number being seventy-five.
2. The experiment should be carried on for a sufficient length of time to make the results convincing.
3. There should be a record of the physical condition and weights of the children at the time of beginning the experiment.
4. The diet as a whole should be analyzed.
5. The exact weights of the portions of both margarin and butter should be recorded.
6. The entire experiment should be summarized, analyzed and the results interpreted, keeping in mind all the elements likely to affect the deductions.

So far as we can ascertain none of these points was taken into accounts by those who conducted the study in question. "Results," therefore, are not worth the paper on which they are printed.

It is obvious that such slipshod work so far from advancing the cause of scientific feeding is positively detrimental. Not the least of the unfortunate results might be the misunderstandings resulting from the publication of the results and the branding as unscrupulous, persons who might have been merely uninformed or careless.

It would be idle to raise the question if there were no remedy, but the remedy lies close at hand. The past few years have seen the rise and development of a keen group consciousness among all divisions of the food profession. Brilliant men of science are proud to give of their knowledge and to give it where it will be most helpful.

Here is one place where the service would bring incalculable good to a large number.

Our plea is for a simple but authoritatively stated program of standardization

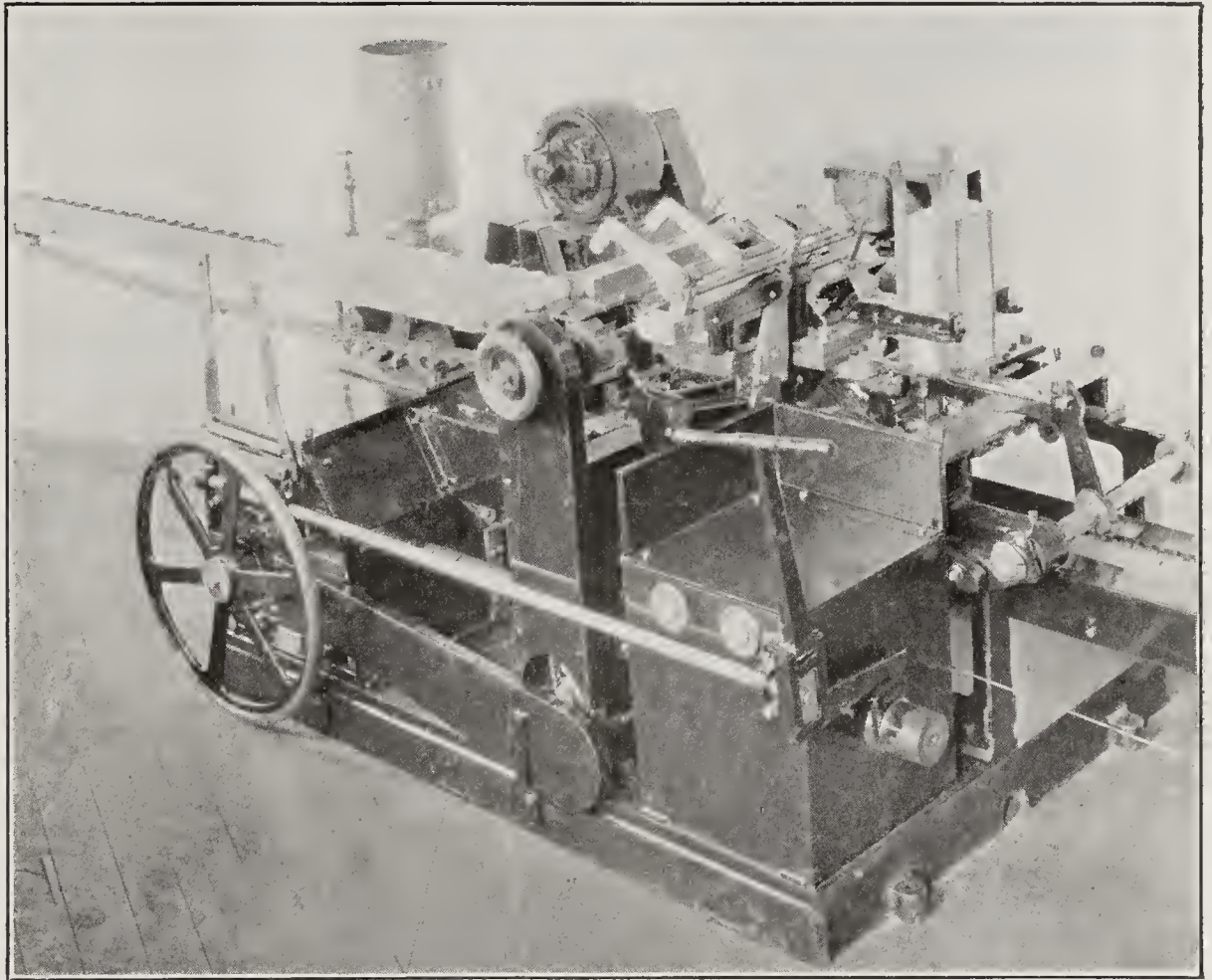
MACHINERY AND EQUIPMENT

Machine of New Design for Automatic Cartoning of Bottles

National Packaging Machinery Company, Jamaica Plain, Boston, Has Brought It Out

A new design of automatic bottle cartoning machine, shown in the accompanying illustration, has recently been brought out by the National Packaging Machinery Company, Jamaica Plain, Boston, Mass. The machine is the invention of W. F. Codrington of that company, who has for several years studied the problems of bottling and cartoning such materials as hydroscopic powdered drugs and sticky liquid dyes. There has been a distinct effort toward simplification, the machine being designed on a standardized, interchangeable unit basis, which is the policy of the National Packaging Machinery Company on all its machines.

The machine illustrated feeds flat cartons from the bottom of a pile, opens the carton without insertion of a blade, feeds a bottle into the carton from the conveyor and closes and seals both ends of the carton. The company states that by a new handling method, breakage of bottles has been reduced to less than 1-5 of 1 per cent, while a speed of 60 cartons per minute, on bottles of average size, is claimed. Attachments which may be added to this machine will fold and insert circulars, feed stitched booklets, insert brushes, paddles or corkscrews or fold and insert a corrugated liner or inner shell.



The new automatic bottle cartoning machine developed by the National Packaging Machinery Company

Bottle Filling Machine Brought Out by Bruno Company

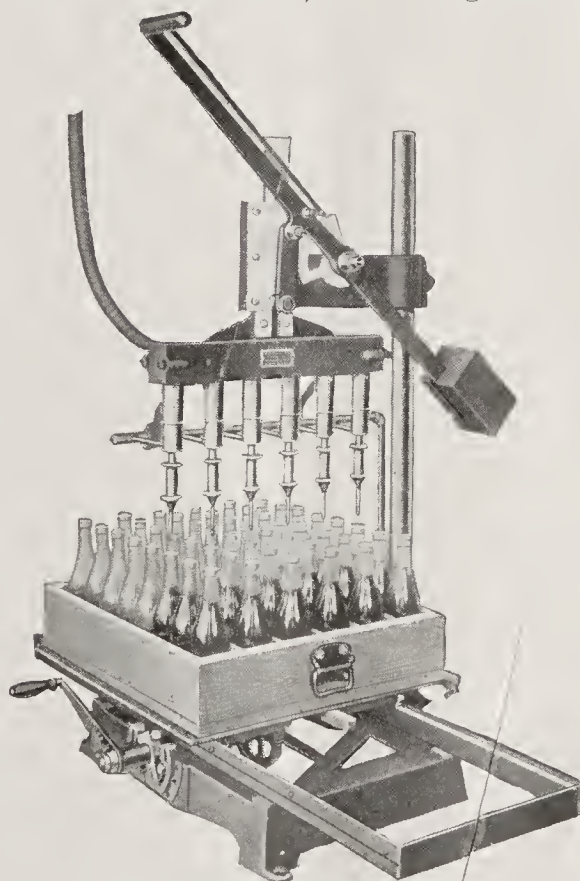
The Bruno Manufacturing Company, Buffalo, N. Y., which has for the past eighteen years been manufacturers of precision tools and machinery and during the past four years has devoted most of its time to the building of special can and bottle-filling machinery, has brought out a new machine for the rapid filling of bottles by direct pressure.

By equipment with the proper size of filling stems the machine will fill any size of round bottle from 1 ounce capacity up to those measuring $3\frac{1}{4}$ inches in diameter. It is also suitable for all sizes of panel shaped and square bottles measuring up to $3\frac{1}{4}$ inches wide. It is claimed by the company that the new filler is not only accurate but free from overflow, leakage or drip.

The movement of the tray platform is governed by a gear and rack under the platform and a reversible roller clutch, which is a part of the operating handle, which shows in front of the base of the machine illustrated. The direction of the tray's travel can be rapidly changed by means of this clutch.

The inaccuracy of the human factor in filling bottles is removed by controll-

ing the tray by the operating handle, which it is claimed, is a large time



Bruno bottle filling machine

saver. The operator is prevented by the handle from pushing the tray platform too far or not far enough, eliminating the danger of breakage of filling stems, which is sometimes caused by not having the filling stems and the bottle openings in perfect alignment.

The filling head of the machine is moved by a counter-balanced lever and a link which connects the lever with the filling head. In locking the filling stems into filling position, the handle, which extends from the end of the operating lever is twisted slightly, allowing a hardened pawl to engage the semi-circular ratchet, which is a part of the filling-head support. The filling stems will remain locked into bottles until they are released by the operator, the release being accomplished by a slight twist of the handle.

The rubber sealers on the filling stems are adjustable by hand, eliminating the necessity for wrenches or screw driver. The filling stems have been constructed so that no springs or small wires are exposed, but, the company claims, they may be easily taken apart for cleaning, or when a change from one liquid to another is made.

FOOD LEGISLATION

Canadian House of Commons Defeats Margarin Prohibition

THE House of Commons of Canada by a large majority on May 15 voted down a resolution to prohibit the manufacture, sale and importation of margarin. The resolution read as follows:

"It is the opinion of the House that in the best interests of the dairy industry and the public at large, the manufacture and importation of margarin should be discontinued in Canada after September 1."

Among the arguments presented in behalf of the dairy industry were these: The dairy industry is basic and should be protected; the sale of margarin, it was claimed, tends to foster deception and fraud; in spite of a 17½ per cent duty on vegetable oils, no duty is imposed on these oils when they are incorporated in margarin; margarin, it was claimed, is deficient in vitamins and its use was alleged to be a menace to child growth. In addi-

tion an argument against margarin was that "those who advocate its continued sale are undoubtedly eager to utilize the expensive machinery installed during the war, and are therefore actuated solely by selfish motives."

Speaking in opposition to the resolution, other members asserted that the dairymen are not so feeble as to need such exaggerated protection; it would be preposterous to deprive those of limited incomes of the power to purchase margarin, which is a wholesome food; many families cannot afford butter; the sale of margarin checks the sale of inferior butter only; figures point to increased sales of high grade butter as soon as the price becomes reasonable; careful investigation shows conditions under which margarin is manufactured to be eminently sanitary; there have been fewer convictions for misrepresenting margarin than for sale of bad butter.

The matter of Government regulation was next discussed. Various members were of the opinion that Government jurisdiction should not extend beyond inspection of sanitary conditions and the checking of fraudulent practices. The pushing of governmental action beyond these points was looked upon by some members as savoring of paternalism.

Importations into Canada and the amounts manufactured there since the restrictions against its sale and manufacture were removed four years ago were as follows:

Year	Manufacture Pounds	Imports Pounds
1918	10,483,000	3,495,000
1919	8,451,000	5,231,000
1920	6,224,000	5,547,000
1921	3,780,000	2,057,000

Except for a small shipment of 5,000 pounds received from England in November of 1921, all imports were from the United States.

Preserved Sweet Cider Does Not Come Under Prohibition Measure

MANUFACTURERS of preserved sweet cider have won a victory, Judge Learned Hand having signed a decree over-ruling the action of the prohibition officials in denying Duffy-Mott Co. and the Hildick Apple Juice Co. of New York a permit to manufacture preserved sweet cider and held that its manufacture did not come within the scope of the National Prohibition Act.

The case was brought about by the refusal of Roy A. Haynes, federal prohibition commissioner, and Ralph A. Day, prohibition director for the State of New York, to grant an application for a permit, dated June 4, 1920, by these companies to manufacture and sell 10,000 gallons of preserved sweet cider, "consisting of the sweet juice of the apple, preserved when pressed by

the addition of approximately one-tenth of one per cent of benzoate of soda, the alcoholic content of which the applicant does not insure will remain below one-half of one per cent by volume."

After considerable negotiation in an effort to obtain a permit from the prohibition officials without litigation, the matter was taken into court. In his ruling Judge Hand declares the decision of the prohibition officers as "erroneous." His decree reads in part:

"That the unadulterated expressed juice of fresh apples, a beverage generally known and uniformly described as cider, containing when produced more or less than one-half of one per cent of alcohol by volume and to which is added during or immediately after

its production sufficient benzoate of soda not exceeding one-tenth of one per cent by weight materially to retard the alcoholic fermentation thereof without impairing the use thereof as a beverage, substantially as described in the complaint or petition, has been manufactured and in general use as a beverage for many years prior to October 28th, 1919, and was generally known and uniformly described in the trade as preserved sweet cider and is preserved sweet cider and corresponds with the description and limitations of the term 'preserved sweet cider' in section 4, title II of the National Prohibition Act of October 28th, 1919, and is not subject to the provisions of said National Prohibition Act as therein provided."

Massachusetts Legislature Passes on Food Bills

A RESOLUTION in the Massachusetts Legislature, calling for an inquiry by the Department of Agriculture into conditions affecting the distribution and issue of meat products, was favorably reported in both the Senate and House of Representatives and has been sent to the Governor. The resolution of the Senate provided that the Department of Agriculture be directed to inquire into the subject of retail marketing and distribution of meat products, conditions affecting prices and to what extent they may be lowered by legislation. It was also directed that the department consider the possible relief that might be afforded to

the consumer by the establishment of public slaughter houses. The House resolution included the statement that the commission of inquiry might advise with the Department of Agriculture and the Massachusetts Agricultural College and both resolutions called for a report on the investigation to be presented at the next annual session of the general court, not later than the first Wednesday in January.

House bill No. 599, amending the laws on the cold storage of foods, has been withdrawn. In the main the bill called for an amendment to the law governing the time permitted on cold

storage of foods, reducing the period from 12 to 6 months, unless an extension of time was granted by the Department of Public Health.

House Bill No. 748, relative to the sale of fruits, foods, beverages, condiments and other foodstuffs, has also been withdrawn. This was an amendment to the law dealing with canned articles of food, to the effect that sealed cans, jars, bottles, cartons or other packages of food or beverages should not be offered for sale unless marked to indicate the grade or quality, date of packing and the name and address of the packer or seller.

Food Flavors: Their Source, Composition and Adulteration

Composition of Various Products as Set Forth in Standards of Department of Agriculture

By J. W. SALE and W. W. SKINNER

Chemist in Charge of Water and Beverage Laboratory, U. S. Bureau of Chemistry, and Assistant Chief of Bureau

PART II

First article published in May issue.

IN Part I of this discussion and compilation of food flavors we referred to Department Circular 136, containing definitions and standards for flavors with which all shippers and users of flavors should be familiar, described various types and mode of preparation of flavors and flavoring products, and began the compilation of data with regard to specific flavors, which included sixteen flavors, the last one being oil of cajeput. In this article we shall extend the compilation to cover additional flavors, keeping in mind their nature, source, mode of preparation, composition, use, and adulteration, and shall include statements of composition of the various products, as set forth in the standards of the United States Department of Agriculture. Most flavors are highly complex compounds and as a general rule, tests for their purity require laboratory equipment and an experienced chemist to conduct them and interpret the data obtained. In a later chapter we shall indicate general methods of examination for the purity of the more widely used flavors.

17. Calamus: Calamus, or sweet flag, is a plant which is widely distributed in Europe, Asia, and North America. The root or rhizome is used for the production of an essential oil which in the case of the green root is obtained to the extent of about 0.8 per cent. The unpeeled dried root yields up to about 3.5 per cent of the oil. The fresh green parts of the plant yield calamus herb oil, similar to calamus oil. Besides the European oil, Galicians, Japanese and Javanese calamus oils have been investigated. Calamus oil has a camphoraceous aromatic odor and a slightly bitter spicy taste. It is used in a few cordials and in some beverage flavors. One of its constituents is asarone.

18. Capers: Capers are the flower buds of a low, bushy shrub, growing wild in Mediterranean countries. France and Spain export large quantities which are cured with salt and packed in barrels with vinegar, the bottling being done in this country. Capers are a condiment and are used for flavoring sauces, meats and pickles.

19. Capsicum: The capsicum family includes several small and large fruited species of red peppers, known commercially as chillies, capsicums and paprika. The chillies and capsicums when

ground are called cayenne and are very pungent, while paprika is mild. The red pepper plant is widely distributed, and red peppers are exported from South America, Europe, Asia, and Africa, for use as condiments, in cooking, and on the table. Red pepper should contain not more than eight per cent (8%) of total ash, nor more than one per cent (1%) of ash insoluble in hydrochloric acid. Cayenne pepper, cayenne, should contain not less than fifteen per cent (15%) of nonvolatile ether extract, not more than one and five-tenths per cent (1.5%) of starch, not more than twenty-eight per cent (28%) of crude fiber, not more than seven per cent (7%) of total ash, nor more than one per cent (1%) of ash insoluble in hydrochloric acid. Paprika should contain not more than eight and five-tenths per cent (8.5%) of total ash, nor more than one per cent (1%) of ash insoluble in hydrochloric acid. The iodine number of its extracted oil is not less than 125, nor more than 136. Hungarian paprika is paprika having the pungency and flavor characteristic of that grown in Hungary. Rosenpaprika, Rezsopaprika, rose paprika, is Hungarian paprika prepared by grinding specially selected pods of paprika, from which the placentae, stalks, and stems have been removed. It should contain more seeds than normal pods, not more than eighteen per cent (18%) of nonvolatile ether extract, not more than twenty-three per cent (23%) of crude fiber, not more than six per cent (6%) of total ash, nor more than four-tenths per cent (0.4%) of ash insoluble in hydrochloric acid. Koenigs-paprika, king's paprika, is Hungarian paprika prepared by grinding whole pods of paprika without selection, and includes the seeds and stems naturally occurring with the pods. It should contain not more than eighteen per cent (18%) of nonvolatile ether extract, not more than twenty-three per cent (23%) of crude fiber, not more than six and five-tenths per cent (6.5%) of total ash, nor more than five-tenths per cent (0.5%) of ash insoluble in hydrochloric acid. Pimenton, pimento, Spanish paprika, is paprika having the characteristics of that grown in Spain. It should contain not more than eighteen per cent (18%) of nonvolatile ether extract, not more than twenty-one per cent (21%) of crude fiber, not more than eight and five-tenths per cent (8.5%) of total ash, nor more than

one per cent (1%) of ash insoluble in hydrochloric acid. Extract of red pepper is used in many ginger ales to increase their pungency and possibly in some instances as a substitute for ginger. The pungency of red pepper is due to the active principle capsaicin. Red pepper contains also coloring matter, starchy material, and a fixed oil. The following adulterants of ground red pepper have been reported among others: Cereals, mustard hulls, olive stones, mineral adulterants, olive oil, coconut shells, ground red wood, and coal tar colors.

20. Caraway: Caraway is the seed-like fruit of an European cultivated biennial herb of the parsley family. The fruit has a warm, spicy flavor. Caraway seed should contain not more than eight per cent (8%) of total ash, nor more than one and five-tenths per cent (1.5%) of ash insoluble in hydrochloric acid. Oil of caraway is distilled from the fruit and consists chiefly of carvone, fifty to sixty per cent (50-60%) and limonene. Carvone is also a characteristic ingredient of dill oil. After separation from the limonene, the carvone can be used in place of the oil. The product, limonene remaining after separation of the carvone is similar to the by-product obtained from the manufacture of terpeneless lemon oil and can be used for the same purpose; namely, perfuming cheap soaps. The fruit is used in cooking and the oil in the form of an extract is used in soda water flavors.

21. Cardamom: Cardamom is a plant with a thick, woody root stalk which is cultivated in Ceylon and Malabar. Commercial cardamoms are the seeds covered by a capsule. Cardamom seed consists of the fruit with the pericarp removed. Cardamom oil is distilled from the seeds and is sometimes adulterated with the cheaper coriander oil, the yield of oil being from three to six per cent (Ceylon seeds). The oil contains a considerable amount of the ester, terpinyl acetate, which requires two hours for complete saponification. The seeds and the oil are used for flavoring purposes in cordials, confectionery, cakes, sausage, etc.

22. Cascarilla: The trees supplying cascarilla bark from which one to three per cent (1-3%) of the oil is obtained by distillation, grow in the Bahamas in the British West Indies. The oil has a fine aroma.

23. **Cassia:** The cassia tree is cultivated chiefly in China proper, which exports the largest amounts of cassia bark and cassia oil. The flower buds (cassia buds) and bark of the cassia tree, as well as the essential oil have a cinnamon-like odor which is less delicate and more powerful than the odor of oil of cinnamon. Ground cassia (ground cinnamon) should contain not more than five per cent (5%) of total ash, nor more than two per cent (2%) of ash insoluble in hydrochloric acid. Being cheaper, cassia oil is sometimes used to adulterate cinnamon oil. Cassia oil itself is almost universally adulterated with rosin and must be redistilled. It is usually contaminated with lead derived from the containers in which it is shipped from China. Oil of cassia is distilled from the leaves and young twigs of the cassia tree in China. The bark also yields oil. Commercial cassia oil should be lead free and should contain not less than seventy-five per cent (75%), by weight, of cinnamic aldehyde, which is also the principal odorous constituent of cinnamon oil. Artificial cinnamic aldehyde is a commercial article and is more expensive than cassia oil, but cheaper than cinnamon oil. Cassia extract should contain not less than two per cent (2%) by volume of oil of cassia.

24. **Celery:** The celery plant is a biennial and produces fruit in the second year. The plant is grown extensively in the United States. Celery seed should contain not more than ten per cent (10%) of total ash, nor more than two per cent (2%) of ash insoluble in hydrochloric acid. While all parts of the plant yield essential oils, the oil from the dried fruit or seed is more highly esteemed and is the usual commercial variety. The seeds yield about three per cent (3%) of oil which contains a considerable amount of dextro limonene which is present in lemon and orange oils also. The characteristic celery odor of the oil is not due to dextro limonene, however, but to a lactone. Celery seed extract should contain not less than three-tenths per cent (0.3%) by volume of oil of celery seed.

25. **Chamomile (Camomile):** Chamomile is a plant of the aster family, which is cultivated in Germany, Great Britain, France, and Belgium. The oil distilled from the flowers is of two varieties: namely, oil of Roman chamomile and oil of German chamomile. The yield of Roman chamomile oil is about one per cent (1%). The oils have a bitter, aromatic taste and a characteristic aroma, due chiefly to the presence of various esters.

26. **Cherry:** The bark of the wild cherry tree, a domestic forest tree, is used in the form of an extract in soda water flavors. On distillation the bark yields about two-tenths per cent (0.2%) of an essential oil very closely resembling oil of bitter almonds, its flavor being due to benzaldehyde.

27. **Cinchona:** Cinchona is the dried bark of an evergreen tree growing in the Andes and cultivated in the East Indies. This bark yields an alkaloid which is the quinine of commerce. An extract of the bark is used to impart a bitter taste to the cola type of beverages.

28. **Cinnamon:** Ceylon cinnamon is the dried bark of a tree, a native of Ceylon, but which is cultivated also to

some extent in various other tropical countries. Ground cinnamon (ground cassia) should powder made more than five per cent (5%) of total ash, nor more than two per cent (2%) of ash insoluble in hydrochloric acid. The question of the use of cassia buds in ground cinnamon is under consideration. Cinnamon oil is used for flavoring beverages of the root beer type, cordials, and fine confectionery. It is obtained to the extent of five-tenths to one per cent (0.5 to 1%) by distilling the bark, and should be lead free and should contain not less than sixty-five (65%) by weight of cinnamic aldehyde and not more than ten per cent (10%) by weight of eugenol. Adulteration of the bark oil consists in adding the leaves to the bark when distilled or adding cinnamon leaf oil to the bark oil after distillation. The cheaper oil of cassia is also an adulterant of cinnamon oil. Cinnamon extract should contain not less than two per cent (2%) by volume of oil of cinnamon.

29. **Citron (French cedrat, not citron):** The citron tree grows in southern Europe, especially in Italy. The fruit resembles the lemon but is larger and has a thicker rind. The rind is candied and also yields on expression an essential oil similar to lemon oil with which it is sometimes adulterated.

30. **Cloves:** Cloves are the dried flower buds of an evergreen tree. Zanzibar, Pemba, Penang and Amboyna are commercial grades, Penang cloves being the best. Cloves should contain not more than five per cent (5%) of clove stems, not less than fifteen per cent (15%) of volatile ether extract, not less than twelve per cent (12%) of quercitannic acid (calculated from the total oxygen absorbed by the aqueous extract), not more than ten per cent (10%) of crude fiber, not more than seven per cent (7%) of total ash, nor more than five-tenths per cent (0.5%) of ash insoluble in hydrochloric acid. Clove buds yield from fourteen to twenty-one per cent (14-21%) of essential oil which contains seventy-eight to ninety-eight per cent (78-98%) of eugenol (eugenol obtained from clove oil is a raw product for the manufacture of synthetic vanillin). Clove stems also yield a similar essential oil but in smaller quantity. Oil of cloves should be lead free. Clove extract should contain not less than two per cent (2%) by volume of oil of cloves.

31. **Coca:** The coca tree is a South American plant growing to a height of from six to eight feet. It is cultivated also in the West Indies, India, Ceylon, Java and elsewhere. Large quantities of the leaves are chewed by the natives. One of the chief active principles of the leaves is cocaine, which must be removed before the leaf extract is used in beverage flavors in the United States.

32. **Cocoa (chocolate):** The cacao plant is widely cultivated in Mexico, Central and South America, the West Indies, and in other tropical countries. Chocolate and cocoa products are made from the beans which grow in pods on the tree. After separation from the pods the beans are fermented or sweated to remove pulp, and are then dried, cleaned, roasted and crushed. Two products are thus obtained, cocoa nibs, which are broken kernels, and cocoa

shells. The germ is removed when the beans are crushed. The shells are used to make cheap beverages having a flavor resembling chocolate. The cocoa nibs are ground and used to manufacture sweet and bitter chocolate, cocoa, cocoa butter, and other products. Cocoa is chocolate which has been deprived of a portion of the fat or oil and finely pulverized. An important constituent of chocolate is theobromine. Chocolate, plain chocolate, bitter chocolate, chocolate liquor, chocolate paste, bitter chocolate coatings, should contain not more than three per cent (3%) of ash insoluble in water, three and fifty hundredths per cent (3.50%) of crude fiber, nine per cent (9%) of cacao starch, and not less than forty-five per cent (45%) of cacao fat.

33. **Coriander:** Coriander seed is the dried fruit of an annual herb which is cultivated in Europe, especially France and Russia, Galicia, Roumania, and elsewhere. The ground fruit is used in sausage and curry powder and the whole fruit in pickling spice. Coriander seed should contain not more than seven per cent (7%) of total ash, nor more than one and five-tenths per cent (1.5%) of ash insoluble in hydrochloric acid. The yield of essential oil is about five-tenths per cent (0.5%) or less. The yield varies considerably, depending upon the source of the seed and other factors. The characteristic constituent of the oil is linalol, one of the higher alcohols which occurs in a number of essential oils, including oil of linaloe, ylang ylang (perfume), petit-grain, lemon, and spearmint. Pinene is present also.

34. **Cumin:** The annual plant from which cumin seed is obtained is cultivated in southern Europe, Africa and Asia. Commercial supplies are exported from Sicily, Malta, Magador and India. The dried fruit is used for flavoring sausage, curry powder, bread and cake. Cumin seed should contain not more than eight and five-tenths per cent (8.5%) of total ash, nor more than one and five-tenths per cent (1.5%) of ash insoluble in hydrochloric acid. The seeds yield from two and five-tenths to four per cent (2.5-4%) of essential oil, of which the principal constituent is cumic aldehyde.

35. **Curacao:** Curacao peel is the dried peel of the curacao orange, a peculiar variety of orange growing in Curacao, an island in the Dutch West Indies. It is used in the manufacture of Curacao liquor and for this purpose is softened by maceration with water and subjected to distillation.

36. **Curcuma (turmeric):** Curcuma is the dried rhizome or bulbous root stalk of a perennial plant cultivated in India, China, southern Asia, and elsewhere. The dried and powdered root is used for flavoring food products, especially curry powder, and for coloring them also since it contains a bright yellow color. The flavor is slightly bitter and aromatic. An essential oil, which, however, is not of commercial importance, can be distilled from the root.

37. **Dandelion:** The dandelion (*taraxacum*) is a perennial or biennial herb growing in most northern countries. The dried and powdered plant is used to prepare fluid extracts.

(To be continued)



Federal "Filled Milk" Bill Passes House

Measure Introduced by Representative Voigt of Wisconsin Carries
by a Vote of 250 to 40—Goes to Senate

LEGISLATION prohibiting interstate or foreign commerce in filled milk was passed by the House of Representatives on May 25 and is now before the Senate. The measure adopted was introduced in the House last August by Representative Voigt of Wisconsin. It makes unlawful the manufacture of filled milk in any territory or possession of the United States or in the District of Columbia or its shipment or delivery for shipment in interstate or foreign commerce.

The term "filled milk" is defined in the bill as "any milk, cream, or skimmed milk, whether or not condensed, evaporated, concentrated, powdered, dried or desiccated, to which has been added or which has been blended or compounded with, any fat or oil other than milk fat, so that the resulting product is in imitation or resemblance of milk, cream, or skimmed milk, whether or not condensed, evaporated, concentrated, powdered dried or desiccated, and as such is an adulterated and deleterious article of food, and when marketed as such constitutes a fraud upon the public."

Violation of the law is to be punishable by a fine or not more than \$1,000, or imprisonment for not more than one year, or both. It is provided, however, that no penalty shall be imposed for any violation occurring within 30 days after the approval of the act by the President.

The bill was not passed without considerable debate, more than three

hours being devoted to consideration of the measure before a final vote was taken. Representative Voigt and other proponents of the legislation were bitter in their denunciations of milk compounds, while Congressmen who were opposed to the bill were equally anxious that there be no misunderstanding as to the part milk compounds play in the dietary of the country. It was claimed by the opponents of the measure that milk compounds are not sold as milk by the manufacturers and that where the retailer sells them as milk it is an act on the part of the retailer for which the manufacturer should not be held responsible. They also pointed out that there are a number of uses to which filled milk can be put where it does not interfere with real milk and where real milk is not necessary.

Bill Is Attacked

Representative Aswell of Louisiana attacked the legislation as being an attempt to put more Government in business. "This proposed bill on the subject of filled milk," said Mr. Aswell, "is to my mind a very serious one, because it involves the fundamental principles of Government. I think most of the gentlemen on the Republican side in the last campaign made the solemn pledge to the American people that there would be less Government in business. The purpose of this bill is not only to put the Government in business, but to put the Government into the business of putting out of business legitimate business. I want to make an assertion and prove it by

the hearing, that the proponents of this bill, namely, the dairy interests of certain sections of the country, have one definite purpose, and that is to remove competition from their own business.

"This whole question is an effort to have Congress step in and protect the private dairy industry by cutting out their competitors in their legitimate business. It is monstrous that the Congress should be asked to destroy business in which millions of dollars have been invested, merely for the purpose of more profit to the dairy business competing with them. The purpose of the bill is to shut out competition with the dairy industry, which has here the most powerful organized lobby in the world.

"The proposition is this: if you propose to prohibit the sale and manufacture of milk compounds, you must in honor bound proceed at once to prohibit the manufacture of lard compounds and patented and mixed flours, because they have the same relation to public health. These milk compounds sell on an average of three cents a can cheaper than the other. And I am convinced that any man at this time and in this crisis in our country's history who would shut away from the poor people of the country any kind of wholesome food must shudder with responsibility for the results that are to follow. Any man who will advance the price of food products now is treading upon dangerous ground, and

that is what is proposed to be done here."

Haugen Declares Product a "Fraud"

The object of the legislation, according to Representative Haugen of Iowa, chairman of the House Committee on Agriculture, is to "suppress fraud and deception by prohibiting the manufacture and shipment of filled milk in interstate or foreign commerce, a counterfeit generally conceded to be a gross menace to public health, especially to that of infant and invalid." Mr. Haugen introduced figures from the Bureau of Markets purporting to show that the production has increased from slightly more than 30,000,000 pounds in 1917 to more than 84,000,000 pounds in 1920, or about 275 per cent. This was in case goods, bulk goods decreasing approximately 50 per cent during that period, but leaving a net increase in the total production in three years of 51,532,098 pounds.

"In my opinion," said Mr. Haugen, "fraud, made possible by counterfeiting, should not be tolerated. It should be prohibited in every form. In my

opinion the counterfeiting of milk is just as unjust, if not more so, as the counterfeiting of gold dollars. Counterfeiting a \$10 gold piece robs the victim of \$10. The counterfeiting of 100 pounds of butter fat, worth \$35, by substituting for it 100 pounds of coconut fat, worth \$12, and selling the compound at the milk price, not only robs the victim of \$23, but if served to infants or invalids it may rob him of his child or other members of his family.

"The counterfeit of milk is on a par with the counterfeiting of oleo for butter. We have had much experience with oleo laws. We all believe in just laws and an honest administration of such laws. We cannot be contented with anything else. Legislation not to deprive an individual, corporation, or interest of a single dollar honestly acquired, but legislation to promote progress, prosperity and happiness to all our people, to see to it that nobody is imposed upon, that all are given adequate protection against counterfeiting, resulting in fraud and deception; yes, against any invasion on the part

of unscrupulous interests in order that we may have the fullest development of every worthy and legitimate enterprise, certainly legislation to protect the health and lives of our people."

Passed by Large Majority

An effort to amend the bill so as to give those engaged in the manufacture of filled milk one year in which to dispose of their business, was introduced by Representative London of New York but failed of adoption. He pointed out that while it might be advisable to enact the legislation, it was not proper or right that the investment made in the business or the men employed in the industry should be thrown out without due time being given them to make arrangements for the realization of their capital. However, other members of the House felt that enough time would elapse before passage of the bill by the Senate to allow the compound companies to make all necessary arrangements.

When the bill was brought up for a vote it was adopted by a vote of 250 to 40.

Department of Agriculture Studies Margarin Trade

STUDIES of the relation of the production of margarin to the average monthly price of butter have just been completed by the Department of Agriculture, and it has been found that the price of ingredients entering into the manufacture of margarin has but little influence upon the quantity of mamargarin produced.

Since 1917, it is stated, there have been but two occasions when margarin production fell while the price of butter rose. In 1918 this condition was preceded by a large increase in the production of margarin, which probably left the manufacturers with larger stocks than usual, and the demand for margarin did not react to the increased butter price as anticipated by the manufacturers. In April, 1920, the preceding weak butter market apparently put the margarin manufactures on guard for an earlier seasonal break.

The relation between the production of oleomargarine and the price of butter exists almost independently of the price of the principal ingredients of margarin. Coconut oil, cottonseed oil, and oleo oil represented something like 70 per cent of the total ingredients of margarin exclusive of milk and salt during the fiscal year 1921.

During the five-year period under review the prices of these ingredients show a gradual upward and downward trend irrespective of the fluctuations in the production of margarin and the price of butter. The peak in prices of these ingredients was reached in July, 1919, a time when the production of margarin was only 24,000,000 pounds, as compared with a peak production of 44,000,000 pounds in October, 1918, when the prices of mar-

garin ingredients were only comparatively slightly lower.

A remarkable increase in the use of vegetable oils in the manufacture of margarin is indicated. During the period 1912 to 1918, for which data are available, the materials used in the manufacture of oleomargarine, exclusive of milk and salt, were on an average 63 per cent animal fat and 37 per cent vegetable oil. The percentage of vegetable oil ranged from 27 per cent in 1914 to 45 per cent in 1918. Of a total production of 370,700,000 pounds of oleomargarine during 1920, about 191,000,000 pounds or 51 per cent was made exclusively from vegetable oil. In 1918, the proportion, according to Department of Agriculture figures, was about 89,000,000 pounds of margarin, made exclusively from vegetable oils out of a total production of 355,500,000 pounds of margarin.

The situation for 1918 is summarized as follows: 25 per cent of the total production of margarin was made exclusively from vegetable oil, 74 per cent was made from combined animal and vegetable oil, and one per cent exclusively from animal fat, yet during that year 45 per cent of the ingredients were vegetable oils. In 1920, when "nut margarin" production was 51 per cent of the total, and "animal margarin" still only one per cent, it appears that of the ingredients used, vegetable oil predominated and probably constituted as much as 65 per cent of the total, exclusive of milk and salt. In 1918 coconut and cottonseed oils comprised more than 77 per cent of the vegetable oils used in the oleo-

margarine industry and in view of the large increase in the production of "nut margarin," the chief ingredient of which is coconut oil it would seem reasonable to assume that this ratio was even greater in 1920. Assuming, however, that it remained the same and that vegetable oil represented 65 per cent of the material used, the per cent of the material used, the coconut and cottonseed oils going into the manufacture of oleomargarine during 1920 represented 50 per cent of the total ingredients used, exclusive of milk and salt. In 1912 oleo oil, represented 42 per cent of the ingredients used and in 1918 it was nearly 35 per cent.

Hearings Soon on Edge Bill in Behalf of Trade Associations

EFFORTS are being made by Senator Edge, of New Jersey, to have an early date set for hearings on his bill aimed at co-operation, through a Government tribunal, with trade associations in defining the legal scope of their activities. The Senator has been assured by Senators Cummins, Nelson and Walsh, comprising a subcommittee to whom the bill was referred, that hearings would be granted soon, and has expressed his conviction that, as a result of the hearing, a bill will be reported that will provide for full co-operation by some Governmental agency with business organizations.

The bill, as drafted, specifies that the Federal Trade Commission shall be the agency of co-operation, but it is expected that this will be changed so as to designate some other Government department or bureau.

Wholesale Grocers Hold Convention

(Continued from page 18)

other items, probably because the speeding-up of the rate of stock-turn also resulted in better management in the other departments of the business. The common figure for total salesforce expense for the firms that turned their stock less than 4.0 times in 1921 was 2.7 per cent and for firms turning their stock more than 6.0 times it was 2.4 per cent. This difference cannot be attributed directly to the difference in the rate of stock-turn, but it is significant nevertheless as suggesting the interrelation between the results of a rapid rate of stock-turn and the management of other departments of the business.

Lost Less Through Depreciation

"The firms that turned their stock rapidly in 1921 also had another advantage in that they lost less through the depreciation of their merchandise while prices were falling. In this way they increased their gross profit and

thereby their net profit. A rapid rate of stock-turn affects gross profit by reducing the losses from depreciation—both physical depreciation and price declines. The effect of the rate of stock-turn on net profit is entirely the result of its effect upon gross profit and expenses."

Dr. Copeland explained that in order to obtain some reports of individual experience on the rate of stock-turn in addition to the figure included in the bureau's summaries, a half-dozen firms that turned stock 10 to 12 times in 1921 were asked to give a brief statement of methods. These firms were in Tennessee, Rhode Island, Illinois, North Dakota and Minnesota. The replies received indicated that it does not require an expensive, elaborate system to secure a high rate of stock-turn, said Dr. Copeland. "The solution rather is to establish and carry out certain policies, merely keeping such few records as are necessary to furnish the information for the execution of the policies. These policies may be summed

up briefly as follows: Buying merchandise that can be sold promptly; avoiding slow movers; buying in quantities that experience has shown can be disposed of rapidly; guiding the sales organization to dispose of any lines that seem to be moving too slowly. These policies subordinate buying to selling; they call for regulating the purchase according to what can be sold promptly rather than on a speculative basis.

"In the matter of stock-turn, just as in the matter of salesforce expense to which I previously referred, the urgent need in the wholesale grocery business is not in most cases for more elaborate systems or more cumbersome records but rather for detailed analysis of the major items, a willingness to take a fresh point of view which will admit that some of the seemingly impossible things can be accomplished, and finally the application to every business of the principles of management, such as the rapid rate of stock-turn, that are proving to be successful elsewhere."

Reports of Committees

On June 9, the closing day of the convention, the entire day was devoted to the hearing of reports by the various committees: Federal Trade Commission; contracts; pure food and legislative; canners' conference; membership; railroad service; arbitration; metric system; economy conference; containers; educational; fire prevention; foreign trade relations; postal service; education of the jobber; ways and means; and resolutions.

The Federal Trade Commission committee in its report pointed out that:

"The Federal Trade Commission law is not, of course, a war bride, its birth dating back to earlier days, yet its full power did not begin to manifest itself until comparatively recent times. The Commission is now a recognized agency of the Government with whose work we are becoming more familiar and with whose psychology we sometimes agree and frequently differ. It has undoubtedly accomplished splendid results and not always under the most favorable conditions. The investigation and report made by it of the packing industry is a monumental achievement that will endure as an example of courage, fearlessness and justice. It has repeatedly taken up arms in the defense of the weak and oppressed and has battled valiantly against fraud and chicane in business. These are compelling reasons for indorsement and unmitigated praise for such splendid accomplishments.

"Perhaps the most attractive feature of the Commission's administrative machinery is the method of procedure which is known as the trade practice submittal, under which a trade group may place before the Commission any trade practices or abuses that may be questionable, for its decision. After hearings and full discussion are had,

an announcement of the Commission's views is issued, but the right is retained to take action in individual cases and to decide them on the merits.

"The commerce of the country furnishes a fruitful field for the exercise of its corrective influence in this way over practices which are unfair but which cannot be reached in any other manner. We all realize that there is an imperative need for such supervision and regulation, for although trade associations themselves perform a valuable service in this respect, there are still many whose sense of fairness, has not kept pace with the modern idea of trade relationship and ethical competition.

Fair Play in Business

"Business today must have a conscience, notwithstanding the fact that we are all competitors in the struggle for existence. Competition is a part of the fundamental instinct in life. One of the first laws of nature is that of self-preservation, but as we look back to primordial times and observe the historical development of man, we find that the influences of civilization have had a softening effect upon this selfish rule, until today we mingle a proper share of fair play and sportsmanship in our business relationship with our fellow merchant."

The report also said that:

"The best illustration of the Commission's trend in the broadening of its sphere of influence is its recent order against the Mennen Company on the question of terms of sale. Here we have not so much a question of law as a problem in economics that is of vital interest not only to manufacturers and distributors but to the great mass of the public as well. Two schools of distribution are involved, your own

method and the one where goods are distributed from the manufacturer direct to the retailer without the aid of an intermediary. A great many people fail to realize that the former method is still the greatly preponderating one, whereas the latter is of rather recent origin, and is still in the nature of an experiment. It is safe to say that fully ninety per cent of the country's foodstuffs are distributed through the jobber.

"Now, leaving aside the legal features of the problem, which it is not the function of this report to deal with, what basis is there in fact to support any contention that the failure to sell any retailer on the same terms with a jobber is or can be considered as an unfair method of competition. Their functions are not the same; their manner of reaching the consumer is different. The service performed by the jobber necessarily costs money, and it follows that it must be paid for. Unless we are drifting to a monopoly concentrated in the hands of a few, the jobber should be maintained as an integral part of our industrial and economic machinery. What is to become of the thousands of small, independent food producers or canners who depend upon the jobber to furnish them with markets for their materials? The chain store organization or the retailer co-operatives furnish their own markets, and their purchases are in such large quantities that they can dictate terms of sale rather than accept them.

Small Retailer Dependent on Jobber

"The small retailer is practically dependent upon the jobber for his supplies and he cannot be expected to compete on an equality with the large retailer whose large resources, volume of business and storage facilities enable him to buy from the manufacturer

or producer on terms not granted to the smaller merchant. Neither does every community nor every product lend itself to the chain system of merchandising; its most fertile field being found in the large cities.

"The greater cause for complaint lies with the small retailer whose very existence is threatened by the inroads of this type of competition. In other words, there are two sides to the question. The Commission has undertaken to direct manufacturers to extend the same terms to all classes of trade, irrespective of their organization and methods of doing business. We shall now have to await the ruling of the courts on this vital question.

"Another important question of unusual interest to the food trades is the pronouncement of the United States Supreme Court in the Beechnut case. We had all been expecting this decision to clarify the question of a manufacturer's right to suggest resale prices, so that even a layman could understand his rights, but the situation seems to hold as much difficulty as ever. As we view this problem the manufacturer may still refuse to sell his goods to a customer who does not abide by a suggested resale price, but he is not allowed effectively to administer such a policy since, it seems, any system or device of keeping records or means of ascertaining the individuals or firms who do not conform would fall within the ban. In other words, the right is still preserved, but all practicable means of giving it effect are barred."

Recommendations on Packing Cases

Only preliminary progress was reported by the economy conference committee. Activities were confined to negotiations on standardization of shipping cases with the standardization committee of the American Specialty Manufacturers' Association, to which was submitted a number of definite sug-

gestions for the purpose of giving them something definite to consider and not with the idea of urging the adoption of the particular suggestions. The recommendations were as follows:

In view of the wide difference of opinion among wholesale grocers in various markets as to what should be the standard container for various classes of articles, and the difficulty of making a definite recommendation as the consensus of opinion of the majority of the committee members in different sections of the country, manufacturers were asked to be guided by the following general principles:

1. All goods of a similar size and kind to be packed the same number of units to a case, to avoid errors by jobbers in billing and shipping to customers.

2. Bear in mind parcel post regulations in regard to weight and size of all cases so as to avoid the necessity of special packing for parcel post shipments on the part of the jobber.

3. That goods should be packed in a quantity that the average retail grocer can purchase a case at a time, thus avoiding the necessity of selling in less than case lots and repacking in jobber's packing room.

4. The importance of having cases of a size practical for handling from a warehouse and shipping point of view.

It was also suggested that wherever practical, the metric system be used and that goods be packed in cases of 50s and 100s instead of 48s, etc.

The prospects of early results were summed up as follows:

"As a result of our conferences and correspondence with the Standardization Committee of the American Specialty Manufacturers' Association, that committee has had a great deal of discussion and correspondence with members of their Association. The board of Directors as well as a number of divisions of the A. S. M. A. have

adopted resolutions endorsing the plan of standardization of shipping containers and assuring us of their active support, but it appears to your committee that while manufacturers are in favor of standardization, in most instances they seem inclined to believe their particular packages are best and are the ones that should be adopted as the standard by their competitors, with the result that, aside from discussion and agreement as to principles involved, actual progress has not been material.

"Your committee is inclined to believe that it is going to be very difficult to make much more progress other than resolutions and assurances of interest through efforts similar to those which we have been making during the past year."

Contracts Committee Reports

The contract committee stated that: Commencing at the last Convention when a contract was adopted with the California Walnut Growers' Association, then with the California Almond Growers' Association, it had arrived at a contract with the Cannery League of California. This contract the report said, was so fair that the Southern Cannery Bureau of California asked permission to use the League Contract for future sales, by substituting their Association's name in place of the Cannery League. Owing to the fact that the bureau is located at Los Angeles, 500 miles from San Francisco and has members not affiliated with the Cannery League, the request was granted.

This was followed by conferences in April with the Western Cannery Association and a contract was worked out with that Association, fair and equitable to all.

The report continues:

"The 'pro rata clause' in all contracts of the past was unsatisfactory to the seller as well as to the buyer. A happy solution was found by inserting provisions in the League Contract guaranteeing fair delivery. Under the new arrangements—the buyer has the privilege, when delivery is under 75 per cent, of demanding an investigation by the Canner's League without expense. If such investigation shows that a proper delivery has not been made the canner will be assessed.

"Please understand that this 75 per cent delivery clause does not in any way permit the canner to deliver less than his contract, provided he can do so. He must deliver 100 per cent of his contract before he can make any further sales. We have agreed to a pro-rata contract because we do not feel that the canner can guarantee full crops but we have arranged the contract so that only crop failure excuses 100 per cent delivery.

"In the Western Cannery Contract practically the same conditions prevail. We have a 100 per cent clause in that contract, but the loser, if an investigation is called, must pay the expenses. It is also, of course, a pro-rata contract."

UNIFORM PACKING CASE RECOMMENDATIONS

Item	—A—	—B—	—C—
Baking Powder	None	4 oz. 6 oz. 4 dz. 12 oz. 16 oz. 2 dz. 2½ lb. 5 lb. 10 lb. 6	Up to 8 oz. 3 dz. 8 to 15 oz. 2 dz. 1 lb. to 5 lb. 1 dz. 10 lb. ½ dz.
Chocolate & Cocoa	12 lb. box.	6 lb. box	6 lb. and 12 lb. box
Prepared Mustard	Up to qts. 2 dz. Quarts 1 dz.	Same as A.	8 oz. & under 2 dz. Over 8 oz. 1 dz.
Olives	6 oz. or less 4 dz. 6 to 12 oz. 2 dz.	12 oz. or less 2 dz. 6 oz. 12 oz. 1 dz.	Same as B
Salad Dressing	Up to qts. 2 dz. Quarts 1 dz.	Small & Med. 2 dz. Large 1 dz.	Same as B
All agree on the following:			
CEREALS—			
Rolled Oats		Regular 36 pkgs.	Family 12 pkgs.
Corn Flakes		Regular 36 pkgs.	Large 24 pkgs.
Others except Macaroni Products		Small 36 pkgs.	Large 18 pkgs.
Macaroni Products		Package 24 pkgs.	Bulk 5 lb. 10 lb. 25 lb.
DRIED FRUIT		1 lb. or less 40 pkgs.	larger 10 pkgs.
CATSUP AND CHILI SAUCE		8 oz. 16 oz. 2 dz.	No. 10 ½ dz.
COCOANUT		15 lb. boxes	
SAUCES		Up to qts. 2 dz. qts.	1 dz. No. 10 ½ dz.
PICKLES		Up to qts. 2 dz. qts.	1 dz.
CANNED GOODS—			
Soups		No. 1 1 dz.	
Fish (except Salmon, Tuna & Sardines)		1½ lb. 1 lb. 2 dz.	
Salmon and Tuna		1½ lb. 1½ lb. 100 cas	
Sardines		3½ 50 cas	
Meats		No. 1 oval 2 dz.	
Baked Beans		1 and ½ 2 dz.	No. 1 & No. 2 1 dz.
		No. 1 1 dz.	No. 1½, 2, 2½, 3
All kinds		No. 10 ½ dz.	2 dz.
LAUNDRY SOAP		100 bars	

Simplification of Sizes of Containers Urged

The Containers' Committee reported as follows:

Before the Consolidated Classification Committee hearing, held in Chicago, in September of last year, objected to the proposed changes in Rule 41 of the Official Classification. Again, through counsel, Breed, Abbott & Morgan, the committee entered further protest to the proposed changes in Rule 41 at a hearing held in New York during the same month last year.

Up to the present time none of the proposed changes have been put in effect, or any announcement made that they will be.

At the suggestion of President Herscher the committee began a study of the standardization of tin cans.

The committee in preparing a statement for the Joint Congressional Agricultural Committee, as a matter of comparison, took as a standard the regular No. 1, No. 2, No. 2½ and No. 10. The results of its investigation were reported as follows:

"If there were a saving to the consumer in having the multiplicity of sizes, there would be no argument for the elimination of any size, but when the contrary is true, then it is to your interest to use your influence to bring about if possible the simplification of sizes.

"The spread in the contents weight between a short or special No. 2 and the regular No. 2 is only two ounces, and the same situation exists between No. 2½ and No. 3, the consumer paying in most instances the same price for the short No. 2 and No. 2½ as she would for the regular No. 2 or No. 3. The only specific reason then of the multiplicity of sizes is merely a competitive one, wherein the price to the jobber or retailer may be from 2½c to 5c per dozen less for the special sizes.

"It is the added expense that these additional sizes bring to each element of production and distribution that makes them wasteful and unnecessary.

"Using the words of one can and tin plate manufacturer, 'The expense of up-setting lines running regular cans for

the purpose of making special sizes is very considerable. The change necessary to manufacture special sizes affect adversely the manufacturer's overhead expense, which the regular size can must carry as a part of this increased overhead expense.'

"A large lithographer states that it would be a great saving if there were only the regular sizes.

"With duplication comes slowed turnover, which amounts to nothing less than increased cost of doing business. This applies throughout the system of distribution.

"Further separate and distinct shipping container measurements are necessary for special size tin cans, which makes additional costs.

"The lack of standardization of tin cans causes increased costs from the production of the tin and shipping container to the end of distribution.

"There is also the element of confusion on the part of the consumer where there are so many sizes of so slight a difference in size and content.

"Flour and cereal packages show a lack of standardization, and all result in one common finding—increased cost—with no advantage to the consumer. All are the result of competitive conditions.

"Many State wholesale grocers organizations have gone on record favoring standardization of tin cans. Reports from states in each section of the country show favorably toward standardization."

Work of Canners' Conference Committee

The Railroad Service committee reported that it had given attention during the year to such subjects as: Classification ratings on foods in glass; proposed increase by carriers in the rates on perishable grocery items; the general rate case and other matters pertaining to railroad rates and classifications.

The canners' conference committee reported in part, as follows:

"Unfortunately some serious misunderstandings developed during the past

year between the canners and wholesale grocers, and the activities of the conference committee were directed along lines that would correct this condition. The committee received and gratefully acknowledges the advice and additional help of many of the wholesale grocers who acted with them.

"The misunderstanding which existed in the minds of so many individual packers eventually culminated in an unfortunate resolution passed under doubtful authority by the Western Canners' Association bearing upon the matter of the consent decree—a resolution which was never intended, but was created through the misunderstanding of individuals."

In order to progress toward correcting this condition the committee explained that it attended the Wisconsin Pea Packers' Association convention in Milwaukee and also the convention of the Western Canners' Association in Chicago. The convention of the National Canners' Association was also attended, during the progress of which a conference was held between the committee and a committee of the canners. The committee reported that this joint conference apparently assisted greatly in restoring confidence to the minds of the canners and convincing them of the support of the wholesale grocers of the country.

Export Trade Conditions Better

Better conditions in export trade than those prevailing a year ago were reported by the foreign trade relations committee. In concluding its report the committee said:

"If you will determine just where you expect to operate, concentrate on this particular section, work it intensely as you would your home trade, you cannot fail to make a success. We could give you any number of statistics but as these are easily obtainable if desired, we have concluded not to do so. Our main idea at this time is to impress upon you our sincere opinion that foreign trade is worth going after and that conditions at present are not decidedly unfavorable."

Legislative Committee Report

The report of the Pure Food and Legislative Committee was in part as follows:

"While the legislative season of 1922 was a so-called 'short' year, it was short only in the number of legislatures which were in session, since there were many bills of interest to members. In odd-numbered years more than forty state legislatures convene in regular session, while in the even-numbered years but a dozen meet. Each year thousands of bills are introduced in Congress and the state bodies. For instance, at the present time more than

16,000 bills are pending in Congress alone. In order to 'cull' the bills of special interest it is, of course, necessary to examine every bill, and while the volume this year certainly measured up to standard, we are pleased to report that but few bills of great importance were enacted into law.

"In some states where the existing food law is substantially uniform with the Federal statute, attempts were made this year to destroy that uniformity by the introduction of bills regulating the manufacture and sale of many special products, requiring statements of ingredients on labels, incorporating food

standards in statutes, and proposing that the date of packing and the manufacturer's name appear on containers.

"As a rule, the legislative season is about five months in length, and it comes at a time of the year when grocers are extremely busy. Often, therefore, bills of vital interest are not given the serious thought which their importance merits. At times, when an unusually drastic measure makes its appearance, it becomes necessary to telegraph members urging that they take appropriate action.

"May we suggest that each member designate an employee in his establish-

ment whose task it shall be to keep informed on legislative matters? This employee should have within reach a complete file of the association's circulars, chronologically arranged, so that when word is received urging prompt action in connection with a pending bill, the employee will have no difficulty in reporting to his chief the nature or status of the measure.

"The legislative season of 1923 will be a heavy one—more than forty state legislatures will be in session—and we would urge that you give to the work that prompt and splendid attention which you have given it in the past."

Bills Pending in Congress

Congress is now in session, this being the second session of the 67th Congress, and many bills of importance are pending. You probably are familiar with most of them and we will mention very briefly those which seem to be of special interest.

"The slack-filled package bill, which has passed the House.

"A measure which proposes to standardize flour packages.

"Bill prohibiting the sale of so-called 'filled milk,' which has been passed by the House.

"The Calder bill, which would extend the jurisdiction of the Federal Food and Drugs Act.

"Tariff bill, which has passed the House and has been reported by the Senate Committee.

"So-called 'State's Rights Commerce Act.'

"A bill prohibiting the misbranding of all merchandise, known as the 'honest merchandise' bill.

"Metric system bills.

"Several bills relating to commercial bribery.

"The Edge-McArthur 'trade association' bills.

"A bill regulating the cold-storage of foods.

"During the year the following state legislatures have been in session:

"Kentucky, Maryland, Massachusetts, Mississippi, New Jersey, New York, Rhode Island, South Carolina, Virginia. The Louisiana and Massachusetts legislatures are now in session and the Georgia legislators will meet during this month. Special sessions have been held in Arizona and Colorado.

Georgia Legislature Convenes June 28

"In Georgia the Legislature will convene in regular session on June 28. The Louisiana Legislature is now in session but no bills vitally affecting the interests of the food trade are pending at the present time. No laws vitally affecting the interests of wholesale grocers were enacted during the session of the legislature in Maryland. The Massachusetts Legislature at the time the committee report was published was still in session. The committee stated that it would make a full report of laws enacted during the session, after adjournment of the legislature, which had before it bills on the following subjects:

"Relating to cold storage of candy;

amending present cold storage laws by reducing from twelve to six months the time which products may remain in storage*; requiring packages of food to be labeled with the date of packing; amending the existing law relating to the weight branding of food in package form.

"A co-operative marketing law was enacted in Kentucky and a new law relates to the sale, distribution or furnishing of trading stamps. Bills were introduced in the Kentucky Legislature on the following subjects but failed of passage: Prohibiting the manufacture and sale of so-called 'filled milk,' revising the Food and Drugs Act of the State; requiring self-rising flour to be branded with statement of ingredients; establishing standards for condensed milk.

"No laws vitally affecting the interests of wholesale grocers were enacted in Mississippi, but the following bills failed of passage: Requiring self-rising flour to be branded with statement of ingredients; placing a tax on certain sirup mixtures; creating municipal price commissions with authority to fix prices of commodities.

"Chapter 110 of the laws of New Jersey establishes standards for condensed and evaporated milk, prohibits the sale of such products which do not comply with such standards, and requires containers to bear the name and address of the manufacturer. This law also prohibits the manufacture and sale of so-called 'filled milk.' Chapter 5 relates to the manufacture and sale of ice cream. Chapter 255 is a prohibition enforcement act. Bills were introduced in the New Jersey Legislature on the following subjects but failed of passage: Restricting the use of alcohol in all liquids, thereby affecting the manufacture of flavoring extracts; providing for an investigation of food prices; cold storage; sale of commodities by weight; limiting profits which may be taken in the sale of necessities.

New York State Bills

"In New York the following legislation was passed:

"Chapter 360 provides that food in package form shall be labeled to indicate the net contents. Reasonable variations are permitted.

"Chapter 122 repeals those portions of the Penal Law which relate to the manufacture and sale of food.

"Chapter 335 repeals those provisions of the Public Health Law which relate to the manufacture and sale of food products.

"Chapter 136 requires cider and apple vinegar to be made from the pressed juice of apples.

"Chapter 270 amends the Penal Law by prohibiting the use of representations of the national or state flags on business stationery.

"Chapter 364 prohibits the sale of any substance in imitation or semblance of milk which is not milk.

"Chapter 365 prohibits the manufacture and sale of so-called 'filled milk.'

"Chapter 363 relates to the taking of samples for analysis by representatives of the Department of Farms and Markets.

"Chapter 367 gives the Commissioner of Farms and Markets power to establish grades for foods and farm products and provides for the marking, packing and shipping of foods and farm products so graded.

"Chapter 48 recodifies and revises the food statutes of the State. The five laws which formerly related to the manufacture and sale of food products have been consolidated in one statute known as the Farms and Markets Law.

"Bills were introduced on the following subjects, but failed of passage: Creating a State Trade Commission; requiring mixtures and compounds to be labeled to indicate all ingredients; creating a Milk Arbitration Board, with power to fix the price of milk; levying taxes on soft drinks and matches."

"No bills were introduced in the Rhode Island Legislature which vitally affected the interests of the wholesale grocers.

"No laws vitally affecting the interests of wholesale grocers were enacted in South Carolina, but bills were introduced on the following subjects and failed of passage: Weights and measures; prescribing standards for dairy products; taxing soft drinks, tobacco, cigars and cigarettes; requiring natural food products prepared for sale in South Carolina to be branded on the label with the legend 'South Carolina Product.'

"No laws vitally affecting the interests of wholesale grocers were enacted in Virginia, but bills were introduced on the following subjects which failed of passage: Establishing standard weights for corn-mill products; prohibiting the manufacture and sale of milk products in which foreign fats or oils have been substituted for milk fats; relating to weights and measures."

Reports of Other Committees

A report favoring the early adoption of the present bill calling for the use of the metric system in the United States was presented by the metric system committee. The educational committee listed the topics that were under discussion for the year and stated that members of the association had informed the committee that all manufacturers wishing to distribute literature among their salesmen, should address mail to the salesman-manager of the company, or to whomever is in charge of the salesmen and if it met with his approval he would see that it was given out to the men.

The membership committee reported the addition of 51 new members in 18 different states, the largest number, 9, having been secured in Illinois with Michigan second. It was stated that the number of names removed from the membership lists during the year because of mergers, retirements for business, non-payment of dues, resignations and sales totaled 107.

* Defeated.

BOOK REVIEWS

Comprehensive and Critical Discussions of Vitamins

The Vitamins. By H. C. Sherman, Professor of Food Chemistry, Columbia University, and S. L. Smith, Specialist in Biological and Food Chemistry, U. S. Department of Agriculture. Published by the Chemical Catalog Company, Inc., New York, for the American Chemical Society Monograph Series, 1922. iii—273 pages with 20 figures. Price \$4.00.

The demand for a comprehensive and critical discussion of vitamins has been met through the admirable presentation of the subject by Professor Sherman and Miss Smith. Typical of Dr. Sherman's well known publications on food and nutrition, *The Vitamins* is a scholarly accomplishment based upon an exhaustive study of the almost bewildering mass of published data enforced and rounded out by his broad experience in actual laboratory researches not only upon vitamins, but in the general field of nutritional and food chemical problems.

Quoting from the preface, "Although the chemical nature of vitamins is still unknown much of both scientific and practical importance has been learned regarding them, and the present work is designed to summarize this knowledge in as judicial a manner as possible." . . . "It is hoped that the present work may do something to stimulate such quantitative research as distinguished from the merely qualitative tests which have now largely served their purpose, and at the same time may serve to present the chief facts now known in such a way as to show their true significance and avoid exaggerated impressions."

The book is divided into five chapters:

1. Historical Introduction to the Vitamin Theory.
2. The Antineuritic Vitamin (and, or) Vitamin B.
3. The Antiscorbutic Vitamin—Vitamin C.
4. The Fat-Soluble Vitamin—Vitamin A.
5. Vitamins in the Problem of Food Supply.

A bibliography of about 900 to 1,000 references to papers, including titles of same, follows Chapter 5.

This volume constitutes an important addition to and indispensable part of the office or laboratory equipment of all interested in the general food problem, in the manufacture of food products in the chemistry of food and nutrition and in dietetics.

With the exception of vendors of vitamin concentrates and pills, all readers will derive great comfort and satisfaction from the closing paragraph of the book "Even with our present knowledge we believe it safe to say

that with a dietary selected to make the best use of our ordinary staple foods there will rarely, if ever, be occasion to purchase vitamins in any other form, or to give any greater anxiety to the vitamins than to some other factors which enter into our present conception of nutritive requirements and food values."

ARTHUR W. THOMAS.

History of Recent Research in Nutrition

The Newer Knowledge of Nutrition, The Use of Food for the Preservation of Vitality and Health, by E. V. McCollum, Ph.D., Sc.D., Professor of Chemical Hygiene and Public Health, of the Johns Hopkins University, Baltimore, Md. The Macmillan Company, New York.

This exhaustive study shows why the old, chemical method of determining food values was incomplete and then proceeds to trace the development of the present day biological method.

Dr. McCollum states his thesis thus:

"It is with a view to establishing an appreciation of the great differences in the nutritive value of foods the composition of which is as to make them appear alike from the results of chemical analysis, that the present account of the progress attained by the investigations of recent years was prepared."

This is the outstanding message of the book, the vital importance of remembering the principle of relativity when estimating the value of the diet as a whole.

Among the first experiments that stimulated investigation along the new lines was that planned in 1906 by Babcock of the Wisconsin Experiment Station, in which the author of the present volume cooperated. This led to various others, until, after several years' work it has been established that careful laboratory experiments with small animals may be productive of results of incalculable value. Experimental proof of chemical analysis is now entirely practicable.

In developing the technique of this method of study, the experts at first attempted to establish conclusions relating to the physiological effect of a number of the food grains, when eaten singly. The next step was to watch the effect of an increased variety of still simplified diets. Proceeding, the author tells how he advanced to the study of protein free diets in relation to the deficiency diseases.

In 1912 Funk was instrumental in establishing the vitamin theory. Even this, however, did not make clear all of the principles underlying sound dietetics. Leading up to his clear statement of these principles, Dr. McCollum presents exhaustive chapters on the

discovery of the three known vitamins, fat soluble A, water soluble B and water soluble C, the anti-ophthalmic, anti-neuritic and anti-scorbutic substances. The fourth, not yet determined, is also spoken of, as destined to play an important part in developing nutritional technique.

One of the most welcome chapters in the book is the one on the amino-acids. It cannot be too strongly emphasized that the nutritive value of any diet depends on its yield of amino acids, and of these, we are shown that tyrosin, cystin, tryptophan and lysin are the most important.

Finally, the effects of vitamin starvation are plainly stated, the chief symptoms of the deficiency diseases are described, together with suggestions as to dietary treatment.

Is Fat Soluble A the Only Vitamin in Certain Fats?

Studies on Experimental Rickets. XII. Is There a Substance Other Than Fat-Soluble A Associated with Certain Fats Which Plays An Important Role in Bone Development? By E. V. McCollum and Nina Simmonds (from the Laboratory of the Department of Chemical Hygiene, the Johns Hopkins University, Baltimore) and P. G. Shipley and E. A. Park (from the Department of Pediatrics, the Johns Hopkins University, Baltimore). Reprinted from *The Journal of Biological Chemistry*, Vol. 1, No. 1, January, 1922.

With popular and scientific interest focused as it is today on the vitamin theory of human nutrition, this pamphlet will be welcome both to the layman and the scientist. Beginning with a brief statement of Mellanby's work, the authors trace the progress already made in establishing the protective function of certain fats in relation to bone development.

There is evidence that tends to show that codliver oil contains a substance favorable to bone growth, and that this substance is distinct from the fat-soluble A vitamin. The problem discussed in this paper is whether the substance in question is present in both codliver oil and butter fat.

In a series of sixteen charts we are able to follow the progress of groups of rats, each group fed on a different proportion of codliver oil and butter fat, combined with other carefully selected foods. The studies were made in relation to lime and phosphorus needs, the conclusion being that codliver oil contains an abundant supply of a substance present in butter fat in very small amounts only. The authors conclude further that this substance influences bone development favorably, even when the supply of calcium is inadequate.

NEWS OF THE FOOD TRADES

Value of Export Meat Shows Decline

Average Price of All Meats Exported in 1921 was 14 $\frac{3}{4}$ Cents

The tremendous decline which has occurred in wholesale meat prices is indicated in the following figures now available from official sources.

The average value per pound of all meat and meat products exported during 1921 was fourteen and three-quarter cents, as compared with approximately thirty and one-half cents in 1919 the peak year. This represents a decline from 1919 of more than 51 per cent in price.

The average value per pound of meat exported during the month of February, 1922, was only slightly above the value per pound of meat exported during February, 1913.

The export figures cover fresh, pickled, and cured meats of all kinds, animal fats, sausage and sausage casings. Many of the pork cuts exported have not been smoked and otherwise fully prepared for the consumers' use. On these cuts the curing process is completed abroad.

With allowance for such considerations, the value of meat exports per pound is in line with average wholesale prices prevailing in the United States.

Quantity and Value of Meat Exports

Year.	Quantity (pounds).	Value.	Average Value Per Pound.
1913....	1,302,833,615	\$152,865,921	\$0.1173
1918....	3,159,116,126	\$29,660,905	.2626
1919....	3,212,603,537	\$86,011,330	.3038
1920....	1,883,389,053	\$49,015,777	.2381
1921....	1,945,660,210	\$28,070,966	.1475

Canned Figs to Take Place of Dried Product

Growers of figs in California are very much encouraged over the prospects of disposing of their crops as fresh rather than dried fruit. The industry has been built up almost entirely, heretofore, on the basis of dried figs. These figs are dried in the sun and marketed mainly in bulk for cooking purposes.

The Calimyrna, Kadota and Mission varieties of fig are said to be admirably adapted for fresh fruit purposes, such as shipping to fresh fruit markets, both local and distant. The first two are especially fine for canning and preserving. Since the fig cannot be grown commercially in the colder sections of the United States, the California Peach and Fig Growers, a co-operative marketing organization composed of 8,500 members, is arranging to preserve the fresh fruit in its original form and flavor as nearly as possible. It is predicted that canned figs put up in sirup will be as common a commodity as canned apricots, peaches, or cherries, and preserved figs put up in a heavier sirup, a delicious dessert, which will be available at all grocery stores.

In addition to its two modern plants put into operation last year, the Peach and

Fig Growers has under construction a third plant at Dinuba representing an investment of \$105,000 where large quantities of fresh figs will be handled this season. Both Calimyrna and Kadota figs are of a beautiful golden yellow color when ripe and the preserved product in glass presents a very attractive appearance.

Cooking or preserving the fig, it is claimed, does not in any way destroy its laxative properties, or detract from its food value.

Test to Detect Powdered or Condensed Milk

A test for detecting the presence of powdered or condensed milk and sweet-cream butter, when these products are mixed with natural pasteurized milk, has been devised by the United States Department of Agriculture.

The test, which will detect as little as 10 per cent of re-made milk or cream in a mixture, depends partly for its success upon the degree of heat used in the manufacture. The test for both milk and cream is based upon the color produced when the washed curd made from them is dissolved in sodium hydroxide. When the curd solution has stood for several hours a characteristic yellow color develops in the samples taken from remade milk and cream and mixtures containing them. Samples of natural milk or slight mixtures do not show it.

The Department of Agriculture points out that remade milk and cream are wholesome foods when made properly from good, natural milk, but should be sold for what they are and this test is devised for use by food officials in detecting deception.

Former Brewery to be Used for Maple Products

The recently organized Maple Producers' Co-operative Association, which includes maple sap producers in Central and Northern New York State, principally in the Adirondacks and St. Lawrence County, will shortly take over for operation a former brewery at Syracuse, which is being converted into a maple sirup and maple sugar plant for the association. The association, which is similar to the California Citrus Fruit Growers and other co-operative associations, expects to handle this year about 8,000,000 gallons of sap and produce about 200,000 gallons of maple sirup.

The association formed by the farmers in Northern and Central New York, is an effort to sell their maple sirup profitably and offer to consumers in the cities a line of pure maple products under an advertised label. For a number of years the prices obtainable by farmers for pure maple sirup and sugar have been so low that it was hardly worth while to draw the sap from the trees, according to Herschel H. Jones, director of the New York office of the State Department of Farms and Markets.

Members will put all their sirup into 50 gallon steel drums and ship to the Syracuse plant, where it will be brought to a uniform high quality and manufactured into the line of maple products that is to be advertised.

Canners Urge A Bargaining Tariff

Other Countries Shipping Canned Goods Here but Exact High Duties at Home

Canners of the country are being urged to communicate with their senators immediately in an effort to save the so-called "bargaining clause," Section 302, which was dropped from the latest draft of the tariff bill by the Senate Finance Committee. It is urged that this section, with certain amendments, be restored, otherwise, the argument is advanced, there is not much for relief in exporting goods in the face of high prohibitory duties exacted by other nations.

Why the Clause Should Be Restored

Many other industries anxious to develop foreign markets would be equally benefitted by a strong trading clause, notably the automobile industry. An argument advanced by the canners is that France, Belgium, Spain, Italy, Portugal, Japan, Australia, Canada, Argentina, and Brazil are all shipping canned goods to this country which are admitted on a lower rate than those countries charge against canned foods coming from this country.

Should the Senate restore Section 302, as amended, the canning industry would have the opportunity of requesting a raise in the duty on French canned peas and sardines, unless France would lower her duty on canned foods coming from this country. A similar opportunity would arise in connection with canned crabmeat coming from Japan by our raising the duties on this product unless they lowered their duties on canned salmon, sardines and other canned foods we might desire to send them. Likewise Spain is shipping canned pinientos, Italy canned tomatoes, tomato products, olives, olive oil, and tuna fish, and the Latin American countries, Argentina and Brazil, are being allowed to ship canned meats into this country, all at a much lower rate than we are permitted to ship our canned foods into those countries.

William A. House, of Shredded Wheat Company, Dies

William A. House, district sales manager of the Shredded Wheat Company at Jacksonville, Fla., recently died in Jacksonville. Mr. House had a wide acquaintance in the grocery trade, with which he had been in contact for many years, having been a district sales manager for the Diamond Match Company prior to his connection with the Shredded Wheat Company.

E. G. McDougal Becomes President of Libby, McNeil & Libby

W. F. Burrows, president Libby, McNeil & Libby, has resigned to become chairman of the board of directors, and has been succeeded as president by E. G. McDougal, the vice-president, who has been connected with the company for about 20 years.

There is no purer food than

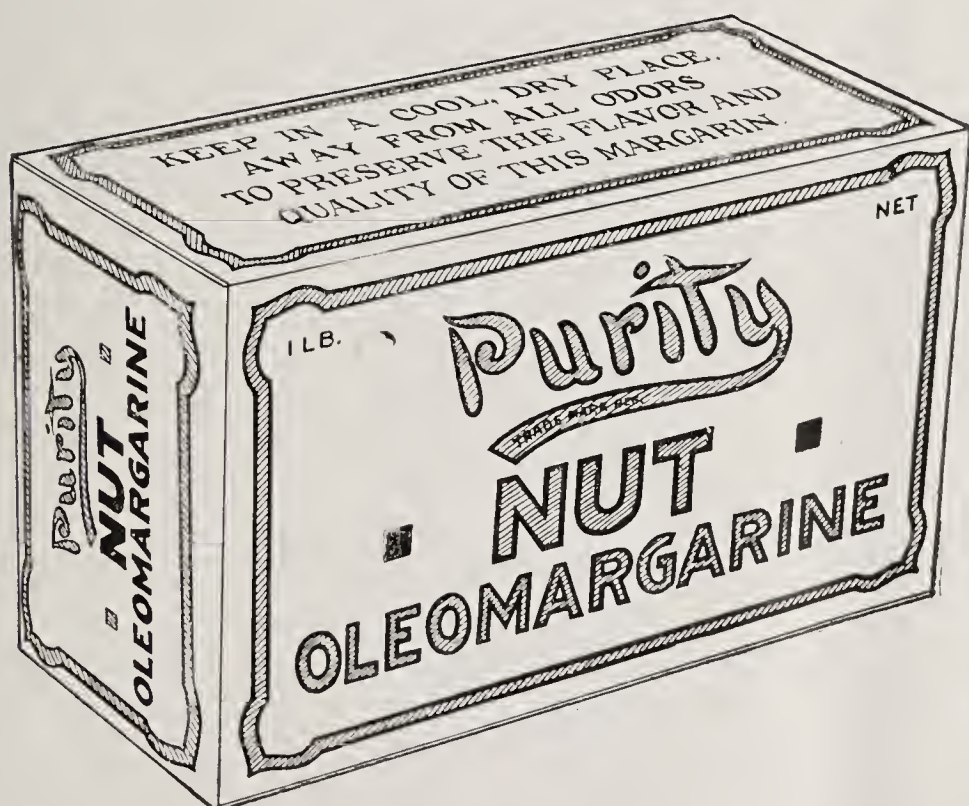
Purity
TRADE MARK REG.
NUT MARGARIN

From two wholesome ingredients—refined nut oil and sweet pasteurized fat-free milk—with just enough salt added to flavor; Purity Nut Margarin is made fresh every day.

Each pound is wrapped by machines and no hand touches it until it reaches the consumer, a clean, fresh, pure, wholesome, body-building food.

The Capital City Products Co.

Columbus, Ohio



Food Exports About the Same as Last Year

The total value of exports of agricultural products is about the same as for last year and about twice the pre-war average for the month of April, according to the Foodstuffs Division of the Department of Commerce. The average prewar value of grain, meat, and cotton exports for the month of April was about \$59,000,000, for April, 1922, this amounted to \$102,386,698.

Domestic exports of all cereals for April, while a little less than for the month of March, amount to over a million tons, against a prewar average for the month of April of about a quarter of a million. Approximately half of this is made up of corn. For the past six months the exports of corn have increased while the exports of wheat have been declining. The total exports of corn for the last four months are over \$5,000,000 bushels, against 38,000,000 bushels for the same period

last year, and an average of 21,000,000 bushels for the 1910-14 period. This enormous increase in corn exports is in part due to relief corn sent to Russia, and in part to large purchases of corn by other countries for consumption. The relative low price of corn undoubtedly has been a big factor in this increased demand and it is probable also that the extensive advertising which corn had had, due to its use in relief work, has been an important factor. It is hoped that this will help to establish a new permanent outlet for the great surplus of corn in the United States.

It is also of interest to note that we have exported almost 5,000,000 barrels of flour since the first of January, compared with a little over 3,000,000 barrels for the pre-war years for the same period. This large export, in spite of the fact that a number of European countries, to main-

tain their own milling industry, have almost prohibited the importation of American flours either by embargo or tariff preferential, is to be considered satisfactory and speaks well for the enterprise of our trade.

Exports of meat products are showing the usual seasonal decline at this time of year, but are still considerably above pre-war exports for the period and considering the general European economic situation are looked on as quite satisfactory.

In fruits the very heavy movement of raisins and prunes still continues.

Since the first of the year there has been a remarkable development as in the exports of sugar amounting to almost 800,000,000 pounds the first of January, compared with 150,000,000 pounds last year, and an average prewar exports of almost 19,000,000 pounds for the same period. Europe is a long way from being self-sustaining in sugar and it is probable that continued heavy exports in this product may be expected for several months.

There has been a remarkable drop in the exports of cottonseed oil, both for the month of April and for the four-months period, due apparently to the severe competition this product is meeting in oriental oils.

Decline in Italian Market for American Cotton Oil

When on July 1, last, the Italian government doubled the duty on cotton oil and fixed the duty on soya bean, coconut, palm kernel and other vegetable oils at less than half that on cotton oil, the Italian market for American cotton oil was practically wiped out, states Special Representative Dennis of the Department of Commerce at Rome. This not only hits the American producers but is a serious thing for the Italian consumers, who have learned to use cotton oil in place of butter for cooking purposes. Owing to the long, hot summers, the dairy industry from Rome south has never amounted to much and a cheap substitute for butter, which is extremely scarce and high, has been a great blessing to many households. Further, the use of cotton oil has permitted increased exports of native olive oil which commands in foreign markets double the c. i. f. price of imported cotton oil. From the standpoint of cheapness, the soya bean oil possesses little advantage over cotton oil and to the Italian consumer the latter is much better appreciated.

Bottom of Austria's Larder Visible

The bottom of Austria's larder is now about visible, according to a report from American Trade Commissioner Upson in Vienna. Stocks of frozen beef are exhausted and immediate importation must be resumed. This is due to the shortage of cattle as a consequence of the demand of the Allies that cattle be delivered as reparations. There is a big demand for condensed milk and while some American milk is being imported the bulk comes from Holland. Stocks of fats and lard are greatly decreased, about a five weeks supply remaining on hand. American lard is preferred to other lards because of its good quality and reasonable price. Grain and flour stocks are practically exhausted and purchases must be made from overseas until the middle of July. Because of lack of seed, there will be short crops of wheat and rye, and it is expected that the potato area will be reduced one-third on account of scarcity of seed potatoes.

Commodity	APRIL Domestic Exports Foodstuffs		
	Average 1910-1914	1921	1922
Wheat	2,471,981	17,611,424	4,856,616
Wheat flour	696,857	1,591,905	1,197,529
Corn and cornmeal.....	2,823,559	10,558,336	20,039,866
Rye and rye flour.....	174,749	2,127,141	3,944,684
Barley and barley flour.....	418,300	631,047	1,361,516
Oat and oatmeal.....	302,592	520,004	2,056,036
Rice, whole and broken.....	1,303,643	58,907,643	42,275,536
Lard	32,359,491	51,438,565	43,729,488
Bacon	12,737,149	38,851,837	20,490,130
Hams and shoulders.....	11,964,726	24,925,807	22,763,549
Condensed milk	1,303,577	21,073,620	24,931,419
Butter	472,112	1,106,566	921,826
Cheese	774,100	1,664,287	478,146
Apples	883,017	2,714,777	610,325
Apricots	219,003	1,000,015	47,431
Raisins	659,621	606,903	3,951,459
Peaches	238,437	187,591	188,539
Prunes	1,359,115	8,010,857	4,893,401
Fruit	\$83,215	\$572,510	4,733,758 lbs.
Fish	\$116,131	\$718,431	6,206,259 lbs.
Vegetables	\$92,398	\$250,688	2,890,051 lbs.
Sugar	2,483,187	29,169,455	274,430,096
Coffee, green	2,367,180	3,620,939	2,316,249
Coffee, roasted	96,405	95,968	81,305
Cottonseed oil	23,741,513	20,997,362	4,134,516

Commodity	Four Months Ending April Domestic Exports Foodstuffs		
	Average 1910-1914	1921	1922
Wheat	11,317,051	72,051,489	28,115,429
Wheat flour	3,279,553	5,264,386	4,993,973
Corn and cornmeal	21,080,654	38,553,453	85,486,984
Rye and rye flour.....	344,065	13,208,018	7,261,558
Barley and barley flour.....	2,728,274	6,514,108	7,088,365
Oat and oatmeal.....	1,729,051	2,584,527	5,849,735
Rice, whole and broken.....	4,588,400	183,421,488	172,832,220
Lard	184,416,379	312,616,612	261,927,023
Bacon	60,492,397	113,017,237	103,559,185
Hams and shoulders.....	55,546,529	76,746,080	93,567,830
Condensed milk	5,598,630	102,293,974	90,113,872
Butter	1,673,119	4,006,028	2,634,455
Cheese	1,962,723	4,465,610	2,046,771
Apples	13,191,277	10,855,246	6,026,409
Apricots	1,965,028	2,435,517	540,772
Raisins	3,661,201	3,139,811	13,397,990
Peaches	1,221,759	416,452	784,514
Prunes	11,797,430	16,428,764	25,923,966
Fruit	\$666,195	\$2,603,465	14,918,023 lbs.
Fish	\$1,133,289	\$2,767,195	27,050,953 lbs.
Vegetables	\$395,087	\$1,003,869	11,582,362 lbs.
Sugar	19,150,697	151,281,343	795,482,027
Coffee, green	18,193,384	12,872,161	11,625,144
Coffee, roasted	477,149	437,323	358,255
Cottonseed oil	117,377,278	167,175,994	34,313,703

Food Manufacturers
are invited to
avail themselves of the
broadened facilities of the
Food Service Bureau
of

THE AMERICAN FOOD JOURNAL

WINIFRED STUART GIBBS

Director

A LETTER addressed to The American Food Journal will bring you a constructive reply showing how The Food Service Bureau can cooperate with existing departments of your company or in developing new departments for handling specific work. Among other things, the Bureau can furnish any of the following services:

Scientific Investigation into the nutritive qualities of your product, together with suggestions as to the best method of featuring the results in educational advertising.

Leaflets and Pamphlets indicating recipes, combinations with other foods and scientific facts regarding your product.

Educational Campaigns of a broad-gauge character appealing to the housewife or to the professional food educator.

Exhibits and Lecture Courses exemplifying the uses of your product and its nutritional possibilities.

Publicity backed by a thorough scientific knowledge of the nutritional value of your particular product, informing the public of the place of that product in a well-rounded dietary.

Individual Bureaus in retail centers in charge of nurses or others prepared to give the public purchasers sound scientific information.

Obtaining Access to Institutions, such as hospitals and charitable organizations, which would quickly accept in large quantities foods of proven worth and recognized nutritional values.

Food Service Bureau of The American Food Journal

25 EAST 26th ST., NEW YORK CITY

Trend of British Foodstuff Imports

While there was a marked decline in the imports of cereals by the United Kingdom last year as compared with the pre-war period, the first quarter of 1922 shows an increase over the same period in pre-war years. The low imports for the first part of last year were in part due to overstocking and also to an apparent lower than normal consumption of breadstuffs. The indications are now that the United Kingdom is about back to normal in consumption of imported breadstuffs.

Imports of meats continue higher than in the pre-war period, with the exception of mutton. This was also the case last year and is probably due to the relative higher cost of home production as compared with foreign meats.

Both lard and vegetable fats are still very much higher than pre-war imports, a condition that has existed for the past two years.

In dairy products there has been a very marked increase in the consumption of both cheese and condensed milk, as compared with last year and also the pre-war period. A large part of the dairy products comes from the British possessions, such as New Zealand and Canada, where the production costs are considerably less than in England.

There has also been a very marked increase in the imports of both fresh and dried fruits, figures for the past three months showing an increase of about 50 per cent over the pre-war period.

On the whole the United Kingdom is importing considerably more foodstuffs than during the pre-war period and in a general way much more than for the same period last year. This may be in part accounted for by the very severe drought in 1921, which curtailed home production, especially of vegetables, live-stock forage, and dairy products, and in part to the somewhat improved export trade of the United Kingdom during the past eight months, which increased buying power for foreign products.

Food Show at Chicago's Pageant of Progress

There will be a special food section at the Pageant of Progress, to be held on Chicago's great municipal pier beginning in July. Sixty booths have been set aside for this purpose and they are being engaged by manufacturers. A million persons attended the Pageant last year, and still greater crowds are expected this summer. Exhibitors will be encouraged to demonstrate their methods of manufacture, in order to show the great advances in cleanliness and sanitation as well as to catch the public interest.

A. Hanby Jones is chairman of this section. He is superintendent of the division of foods and dairies of the Illinois Department of Agriculture, and was the first of the State's food officials.

Armour & Company to Have Public Relations Bureau

Armour & Company announces the formal establishment of a public relations department, which will have charge of all matters in which the company comes into contact with the public. This department was formerly under the direction of the advertising department, and in charge of R. D. MacManus, who continues as the head of the bureau.

In announcing its establishment, Laurence H. Armour says: "In order to develop

a bigger and broader and more satisfactory contact with people in general whose interests for the moment are not necessarily in the purchase of our products, it has been deemed wise to divorce such activities from the advertising department, where they have been handled in the past, and to organize a separate and distinct department of public relations and to center in this department such activities as are necessitated by our desire to have the public know all the details of our business, and by our efforts to co-operate with the public in such matters as have nothing whatever to do with the actual production and sales of products."

Raisin Growers Open European Offices

A large appropriation for a special spring advertising campaign in newspapers throughout the United States, has been made by the board of directors of the Sun Maid Raisin Growers of Fresno. Jobbers have been notified that this campaign will cover about two months, announcements emphasizing the regular line as well as the little Sun Maid packages appearing twice a week during this period in 5,324 newspapers throughout the country. The advertising will appeal to bakers, food manufacturers and the consuming public.

Stanley Q. Grady, sales manager of the organization recently returned to Fresno after several months in European markets. He was accompanied by F. A. Seymour, general manager, G. G. Watson, head of the manufacturing department, C. S. Beatty, assistant sales manager and E. M. De Pencier, field sales manager. The Sun Maid Growers was incorporated in England and a sales force with 25 men on the road and an advertising organization were established. Brokers to handle Sun Maid raisins were appointed in all European countries.

It was recently announced that the Sun Maid Raisin Growers will erect two new plants this year. One, which will be at Dinuba will cost about \$155,000 and another at Yuba City is estimated at \$70,000.

New Coffee Firm Organized

Harry H. Wolfe, formerly coffee roaster for the U. & J. Lenson Co., has taken over the five-story building at 25 Old Slip, New York, where he will trade as Harry H. Wolfe, tea, coffee and cocoa merchant, supplying hotels, restaurants, soda fountains, and handling roasting for the coffee trade. The premises have been remodeled and improved by the installation of new handling and roasting equipment, and the company is now about ready to start operations on a large scale. The plant has a roasting capacity of more than 10,000 pounds of coffee daily. Mr. Wolfe has been well known in the coffee trade for about ten years, and enjoys a reputation as an expert roaster. He gained his first roasting experience with Joseph Martinson, with whom he was associated for about six years until he joined the navy in 1917 where he was in charge of the supply department at Newport, R. I. Immediately after his discharge he was made roaster for U. & J. Lenson Co.

New Brokerage Company

The Shampanier Brokerage Company, Scranton, Pa., was recently organized and will be under the management of Garry S. Shampanier, formerly connected with a number of companies in New York.

Plan to Educate Young Men for Meat Packing Trade

Announcement is made that the Institute of American Meat Packers, has under official consideration a development plan submitted by Thomas E. Wilson of Wilson & Co., which proposes the creation at Chicago of a great national educational institution, offering specialized collegiate instruction to young men intending to enter the packing industry and extension and correspondence courses to men already engaged in the industry; a technical research institute, and an industrial museum.

J. Ogden Armour, Oscar G. Mayer, L. F. Swift, Edward Morris, J. C. Dodd, S. T. Nash, E. A. Cudahy, Jr., A. T. Rohe, Arthur Meeker, Howard R. Smith and other prominent meat packers in various parts of the United States have been appointed committee members of a Plan Commission created to develop a detailed programme and ways and means of accomplishing it, for submission to the entire Institute membership at its convention next fall.

Mr. Wilson who is president of the Institute, proposed the plan to the executive committee at its February meeting. That committee, at its April meeting, directed that the plan be transmitted to the membership of the Institute and that the plan commission and its committees be appointed with instructions to proceed forthwith.

Dissolution Decree Entered in Sugar Company Case

The suit of the Government against the American Sugar Refining Company for alleged monopolistic activities, which began in 1910 under the Sherman anti-trust law, has been concluded by a dissolution decree, consented to by attorneys on both sides. The decree specifically enjoins the corporation from conspiracies or monopolies in the sugar industry and from increasing its present holdings of 25 per cent of the stock of the National Sugar Refining Company of New Jersey and its comparatively small holdings in the Great Western Sugar Company and the Michigan Sugar Company.

The decree also states that the corporation cannot elect as its own officers or directors, officials of any of the other three companies. A decree of dissolution was agreed to by attorneys for the American Sugar Refining Company last December, when they pointed out that changes in stock holdings and officials had taken place since the Government instituted suit, so that the practices complained of by the Government no longer existed.

Virginia Fruit Growers Organize

The Tri-County Fruit Growers' Association of Warren, Rappahannock and Fauquier counties was recently organized at Front Royal, Va., and the following officers elected: President John W. Wood, Linden, Va.; vice-presidents George C. Ramsey, Front Royal, J. Frank Jones, Washington, Va. and J. Leroy Baxley, Markham, Va.; and James P. Borden, Front Royal, secretary and treasurer.

Wholesale Grocers' Case Dismissed

The Federal Trade Commission has dismissed formal proceedings against the Iowa-Nebraska-Minnesota Wholesale Grocers' Association of Council Bluffs, Ia. The proceeding was dismissed "without prejudice."

WRITE FOR QUOTATIONS



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and

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TOMATO CATSUP**

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and

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FOR children who must drink milk—
and yet cannot take it without dis-
tressing re-action, here is the formula
most successfully prescribed by emin-
ent physicians and used in the leading
hospitals with the most beneficial re-
sults.

*Soften one teaspoonful Knox Sparkling
Gelatin in one-fourth cup cold milk,
add one-fourth cup hot milk and stir
until dissolved; then add one and one-
half cups cold milk. Chill, or use hot.*

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SPARKLING
GELATINE

The Knox Books contain many delight-
ful dishes for baby and invalid feeding,
as well as hundreds of recipes for all
kinds of desserts, salads, meat dishes,
ice creams and candies. They are free.
Send for them, enclosing 4c to cover
postage.

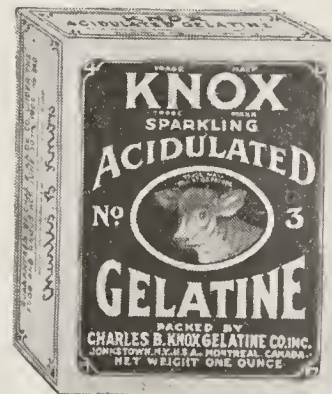
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inal unflavored, unsweetened
package.



The "Busy Housekeeper's"
package. Contains Lemon Fla-
vor in separate envelope. No
Lemons required.

*Both packages contain the same Quality and
Quantity of Sparkling Gelatine*

Recent Patents

The following patents of interest to readers of The American Food Journal, recently were issued from the United States Patent Office. Copies thereof may be obtained from R. E. Burnham, patent and trade-mark attorney, Continental Trust Building, Washington, D. C., at the rate of 20 cents each. State number of patent and name of inventor when ordering.

1,413,995. Machine for coating cakes. Ferdinand G. Salerno, Chicago.

1,414,022. Food product and method of making the same. William R. Huston, Auburn, Me.

1,414,096. Method for the extraction of the caffeine from coffee beans. Henry Roselius, Amsterdam, Holland.

1,414,177. Method of preparing meat extract in a dry state. Adolphe Chalas, Paris, France.

1,414,213. Process of making ice cream. Anthony R. Sanna, Chevy Chase, Md.

1,414,214. Method of making ice cream. Anthony R. Sanna, Chevy Chase, Md.

1,414,215. Method of clarifying ice cream mix. Anthony R. Sanna, Chevy Chase, Md., assignor to George P. Sacks, Bradley Hills, Md.

1,414,275. Method of drying food products. Burt S. Harrison, Brooklyn, N. Y., assignor to Carrier Engineering Corporation, New York.

1,414,504. Apparatus for smoking and curing meat. Theodore G. Crane, Chicago, Ill., assignor to Airoblast Corporation.

1,414,528. Process and apparatus for confection making. Raymond S. Scott, Denver, Colo.

1,414,553. Chocolate-candy cooler. Senterlow Dempsey, Chicago.

1,414,557. Cereal and fruit beverage. Carleton Ellis, Montclair, N. J.

1,414,576. Food product. Hugo Mock, New York.

1,414,675. Food product. Joe Starrels, Niagara Falls, N. Y.

1,414,727. Ice cream freezer. Walter S. Edmonds, Boston.

1,414,743. Candy-pulling machine. Raymond Lopez, San Diego, Cal.

1,414,831. Machine or apparatus for wrapping cakes or blocks, such as caramels or other sweetmeats. Henry Rose, Gainsborough, England.

1,414,859. Apparatus for the preservation of meat and other alimentary substances. Louis F. Bullot, Sydney, New South Wales, Australia.

1,415,010. Apparatus for drying fruits, vegetables, and other substances. George H. Benjamin, New York.

1,415,011. Tunnel-kiln. George H. Benjamin, New York.

1,415,137. Process of making prepared food. Duncan M. Anderson, Toronto, Ontario.

1,415,296. Machine for separating flesh from the skin and bones of fish. James J. Barry, East Boston, assignor to L. Pickert Fish Co., same place.

1,415,458. Fruit coring, sizing, and slicing machine. Elgie J. Lewis, Middleport, N. Y.

1,415,469. Process of improving the odor, taste, and digestibility of raw yeast for the purpose of employing it as edible yeast. Hermann Plauson, Hamburg, Germany.

1,415,669. Process for the production of ice cream. Lee H. P. Maynard, Philadelphia, Pa., assignor of one-half to George P. Sacks, Bradley Hills, Md.

1,415,715. Process for making ice cream mix. Anthony R. Sanna, Chevy Chase, Md. Assignor to George P. Sacks, Bradley Hills, Md.

1,415,893. Food product and process. George Moore, Joplin, Mo.

1,415,942. Process for forming cheese. Julius R. Meyers, Glencoe, Ill.

1,415,943. Process of making cheese. Julius R. Meyers, Glencoe, Ill.

1,415,944. Process of cheese packing. Julius R. Meyers, Glencoe, Ill.

1,416,053. Process of extracting butter fat or oil from milk and cream. Charles E. North, New York.

1,416,128. Process of treating nut kernels to produce food ingredients. Howard R. and Lillian E. Scott, San Jose, Calif.

1,416,284. Process of producing sulpho-aromatic substances for use in the decomposition of fats. Arne Godal, Vestre Aker, Norway.

1,416,372. Process of preparing stable predigested foods. Eudo Monti, Turin, Italy.

1,416,387. Food product and process of making the same. Daniel G. Sell, Kansas City, Mo.

1,416,585. Separator for nut meats from broken nuts. Arthur Stables, Los Angeles, Cal.

1,416,588. Food. Benjamin F. Swazey, Buffalo, Minn.

Japanese Salmon Canning Industry Is Growing

The salmon canning industry of Japan steadily improved during 1921, says the "Japan Advertiser." The output for the year is reported by the Imperial Government at 700,000 boxes of 48 one-pound cans, compared with 500,000 boxes for 1920. In 1921 about 500,000 boxes were exported. More pink salmon than red was caught last year in the Siberian waters.

Italy to Be Self-Supporting in Sugar Next Year

With a fair farming season Italy should be self-supporting in sugar next year, but the prospect of exports of sugar on a large scale are remote, according to advices from A. P. Dennis of the Department of Commerce, in Rome. State sugar control will be abolished about the middle of August, according to official statement by the Italian Government and imports of raw sugar from the present until then are estimated at 10,000 metric tons by the Government, with about 10,000 metric tons of refined sugar imported privately under license. There has been a marked rise in the per capita consumption of sugar in Italy recently, which is attributed partly to the higher standard of living which prevails and partly to the development of the crystallized fruit and other sugar-consuming industries.

Utah Sugar Company Is Incorporated for \$200,000

The Franklin Country Sugar Company, Preston, Utah, has been incorporated in that state with capital stock of \$200,000 and has purchased the plant of the Pingree Sugar Company at Preston, which it has occupied for the past two years. The company announces that a factory will be built at Preston. The company was formerly at Corcoran, Calif. Officers are: President, Arthur H. Gould, Seattle, Wash.; vice-president, Ezra Richardson, Ogden; secretary, E. A. Nickerson, Berkeley, Calif.; and directors, J. H. F. East and Charles Zeimer of Ogden, B. M. Arkens of San Francisco, Arthur B. Gray of Seattle and E. P. Ellison of Layton, Utah.

Michigan Canners Hold Annual Convention

The development of disease resistant strains in various fruits and vegetables will play a vitally important role in the wiping out of many stubborn plant diseases, according to Prof. G. H. Coons, plant pathologist, Michigan Agricultural College, who spoke before the annual spring convention of the Michigan Canners' Association in Grand Rapids. This will without question prove to be the logical method of exterminating plant diseases, he said and pointed out that successful experiments have already been conducted along these lines with cabbages, celery, beans and tomatoes.

The tentative draft of new rules governing the pack, sanitation and inspection of canning factories in Michigan was announced by William J. Hartman, state director of Foods and Markets. He said: "This inspection is going to be so rigid that no canner can come into my office next fall and say that certain canners in the state got by the inspection because of partiality or politics." He said that the inspection would be both uniform and fair in every detail.

The importance of the work of the National department of information and the National Canners' research laboratories was outlined by Dr. Woodbury of the National Canners' Association. These laboratories, he said, conduct investigations into the numerous poisoning cases attributed to consumption of impure canned goods and the department of information makes the results known to the public.

Dietitians to Have Exhibit at Washington Meeting

Space for exhibits at the 1922 convention of the American Dietetic Association, which will be held at the New Willard Hotel, Washington, D. C., Oct. 16 to 18, is being allotted. Several new features, advantageous to exhibitors, including space on the program of the association, are said to have been arranged. There has been a temporary delay in providing data on the space for exhibits, because of the recent fire at the New Willard Hotel. Reservations are in charge of Mrs. M. T. Shafer, chairman of the exhibition committee, 31 Nassau Street, New York.

Corn Sugar Commercially Produced at Iowa Plant

The first carload of sugar made from corn has been shipped from the plant of the Penick & Ford Company, Cedar Rapids, Ia., according to a statement by that company. The corn sugar was produced by a new process, said by the company to have proved to be commercially successful. The plant, which has been manufacturing starch and corn sirup was recently closed down, but has resumed operations on the new product.

New York Fruit Exchange Elects Officers

The eleven trustees of the New York Fruit Exchange, which were selected at the recent annual election, have selected the following officers of the exchange for the ensuing year: Commissioner A. Camp, re-elected president and Harry L. Thompson, vice-president; L. G. Marino, treasurer; and Oscar G. Wentz, secretary. James B. Greason was selected for treasurer but declined. Oscar G. Wentz, secretary, succeeds the late Antonio Zucca.

British Gaining Control of American Coffee Markets

San Francisco's pre-eminence as the distributing point for Central American coffees, gained since the war 'is seriously threatened according to a report from Consul Waterman at San Jose, Costa Rica. Costa Rican coffee is now selling in London for 18 to 20 cents alongside railroad track in Costa Rica and the San Francisco price is from 13 to 15½ cents. While the weakness of the American market is due to recent large shipments of Colombian coffee, the circumstance remains that London prices are much higher than American and that practically all of the remaining Costa Rican coffee is being diverted to London. The closing of several of the Far Eastern ports also handicaps the American market, and when the full pre-war competition for Central American coffees, including most of the European countries, begins to be felt, it will require all the efforts of American coffee importers to retain the Central American trade and they will have to be content with cheaper markets.

Beef Now Selling in China

Chinese prejudice against beef is gradually being broken down, according to reports received by the Foodstuffs Division of the Department of Commerce, and this article is entering more largely into consumption. The cow is not regarded as a sacred animal in China as in some of the other oriental countries but is used so extensively in agriculture that if its flesh were devoted to food purposes a scarcity of animals for plowing, grinding, etc., would ensue, and it has only been in the last decade that cattle have been used for food purposes. There is a good de-

mand for canned meats in China and all varieties may be found in every large city store. It is a very common practice for persons to send presents of tinned foods to friends on festive occasions, such as marriages, and travelers, too, find it most useful and convenient to include cans of provisions with them when journeying in China.

Outlook Gloomy for French Olive Oil Products

Economic conditions in France will seriously handicap the production of olive oil, reports Consul Maybrook at Nice. While the olive crop for the year 1922 is considered good and the quality of oil will no doubt be high, the commercial situation is not looked upon favorably by exporters. In 1921 the price of olive oil was about 40 francs per gallon with an average rate of exchange for the dollar being 13.50 francs; at the present time the same quality oil is sold at 20 francs per gallon, with an average April exchange rate of 11 francs.

The twenty-eighth annual edition of the Orrin Thacker Red Book of wholesale grocers, semi-jobbers, chain stores, etc., has recently been published. In this new edition are listed over 6,000 names, including over 4,800 wholesale grocers in the United States and Canada, and over 1,600 semi-jobbers, chain stores, etc. A tabulation in this Red Book shows the number of names listed in each state. Population of states and cities is given, and the county in which each city is located is designated. The Red Book is published by the Orrin Thacker Directory, 33 West Gay Street, Columbus, Ohio, and sells for \$2 the copy, postpaid.

John Stuart President of Quaker Oats Company

H. P. Crowell for many years president of the Quaker Oats Company, has been elected chairman of the board of directors of the company. John Stuart, previously vice-president, was elected president. The directors voted to resume dividend payment on common stock, declaring a quarterly distribution of 2 per cent to holders of record July 1. The previous dividend on common stock was in April, 1921.

Cream of Wheat Company Cited by Trade Commission

The Federal Trade Commission has issued formal complaint against the Cream of Wheat Company, Minneapolis, Minn. The respondent is given thirty days in which to reply, after which the case will be tried on its merits. The complaint charges the respondent with maintenance of resale prices contrary to Section 5 of the Federal Trade Commission Act.

Our 1922 Sugar Exports Make New "High Record"

Sugar exports from the United States in the fiscal year which ends with this month, the fiscal year 1922, will probably exceed those of any year in the history of our export trade. The United States, says the Trade Record of The National City Bank of New York, has enormously increased its exportation of refined sugar.

The total quantity of refined sugar exported from the United States in the year immediately preceding the war, the fiscal year 1914, was 50,000,000 pounds, jumping to 549,000,000 in 1915, 1,630,000,000 in 1916, 1,250,000,000 in 1917, a little over 1,000,000,000 in 1919, 1,444,000,000 in 1920, 500,000,000 in 1921, and in the fiscal year 1922 seems likely to approximate 1,750,000,000 pounds, or more than in any earlier year.

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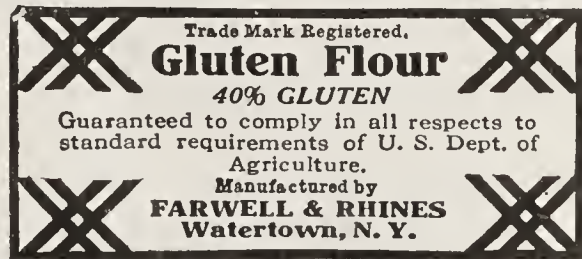
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Adds Healthful Qualities to the Food



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Number 7

The National Magazine of the Food Trades

Established 1906

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Dehydrated Pumpkin Flour

A New Product Which Has Not Yet Developed Its Full Commercial Possibilities



By ARTHUR W. CHRISTIE

Assistant Professor of Fruit Products University of California

PUMPKIN PIE is one of the most popular kinds of that typical American preparation, pie, a standard dessert in the lowliest boarding house as well as the most fashionable cafe. To make good pie is, or at least should be, an accomplishment of every housewife and baker. Except for its limited use as stock feed and for Hallowe'en decorations, most pumpkin eventually finds its use in pies. From Colonial times until a few years ago, pumpkin pie was only associated with late fall "when the frost is on the pumpkin," reaching the height of its glory as an indispensable part of the Thanksgiving dinner.

Thanks to the development of commercial canning, pumpkin pie can now be relished throughout the year. The great increase in the production of canned pumpkin in recent years is evidence of the growing demand for this excellent and convenient commodity. The more recent development in dehydration has now introduced another source of pumpkin pie—dehydrated pumpkin flour.

The commercial production of this new product began in California some three years ago. The firm which first placed this product on the market under a distinctive brand is the Caladero Products Company of Atascadero, California. This company is still the largest producer although the Middle

West has recently awakened to the possibilities of this product and the Wichita Dehydrated Products Company of Kansas, produced pumpkin flour the past season.

During the 1921 season five plants in California dehydrated 4,244 tons (fresh weight) of pumpkin, practically all of which was milled and packed by the Caladero Products Company. Prompted by the interest in this product, the writer made during the past season, a study of the methods and costs of dehydrating pumpkin in three large plants. This information was supplemented by a series of carefully controlled laboratory experiments on methods of dehydrating pumpkin. The following summary indicates that the dehydration of pumpkin is a relatively simple process and can be carried on very economically and on a large scale.

The pumpkin season is an extended one, usually beginning in October and lasting well into January, in California. Uninjured pumpkins if stored in a cool, well ventilated place will keep for several weeks if not piled so deep as to be crushed. Fortunately, for this reason, pumpkins can be dehydrated when no other fruits and vegetables, except apples, are available. This enables plants dehydrating a variety of products to prolong their operating season and consequently reduce their overhead costs per ton.

Method of Dehydrating

Many varieties of pumpkin have been tried in an effort to ascertain which give the greatest yield and best quality of dried product, the Golden Cusshaw, Winter Luxury, California Cheese, Connecticut Field and Boston Marrow being the principal varieties. The Connecticut Field and the Boston Marrow were the main varieties dehydrated the past season, these two having proved the most satisfactory. The Connecticut Field is a round, symmetrical pumpkin with a smooth, golden skin and yields one pound of dried from each 14 to 15 pounds of fresh pumpkin. The Boston Marrow, in reality a squash, is large and irregular in shape with a pointed end and a rough deep reddish yellow skin and flesh. This variety not only gives the richest colored product but also gives the highest yield, only 11 to 12 pounds being required to produce one pound dried. Most plants dried equal quantities of these two varieties, blending the two during milling.

The plants generally contract with the growers in advance for pumpkin and furnish the seed. The price in 1921 was \$5.00 to \$6.00 per ton, f.o.b. plant.

After weighing in, the pumpkins are stored in large piles from which they are trucked to a large wooden vat of warm water. The pumpkins are



Loading cars with trays of sliced pumpkin

washed by hand in this vat in order to remove adhering soil and then thrown on the cutting table. Here the "cutter," armed with a heavy broad bladed knife, chops the pumpkins in half and passes them along to the seeding table after also chopping out the stem. The seeds and soft pulp in the center of the pumpkins are scooped out by men or women using a sharpened steel hoop on a wooden handle. The loss in stems, seeds and pulp during these operations varies from 7 to 12 per cent of the original weight. The seeds and adhering fibre and pulp are collected and conveyed to the seed cleaner, a rotary, toothed and perforated cylinder equipped with water spray. The clean wet seed is dried for a few hours at not above 120 degrees F., from 22 to 24 pounds of seed being recovered per ton of pumpkin. If from a pure strain of pumpkin these seeds are reserved for next years' planting or sold for seed. Pumpkin seeds are high in food value and are used for stock feed also.

The seeded pumpkins are next cut into small pieces for rapid drying, several systems being used. In one plant the halves of pumpkins are first broken into smaller pieces which are then shredded in an ordinary kraut cutter. Another plant passes the seeded pumpkins through a large silage cutter, producing slices as large and thick as a lady's hand, while a third plant uses a small rotary root cutter, obtaining smaller slices about one-quarter inch thick. Other conditions being equal, the finer the pumpkin is cut up, the faster and more uniformly it will dry.

The sliced or shredded pumpkin is spread on screen or wooden slat trays, usually three feet square. The tray load varies in different plants from one to three pounds per square foot, the plants with less efficient drying equipment using the lighter tray load in order to get uniform and thorough drying. The loaded trays are stacked on special dehydrator trucks holding 40 or more trays in two stacks.

Although much pumpkin has been

dried without previous blanching, the best product is obtained when the trays of sliced pumpkin are blanched in a steam cabinet for some four minutes before drying. This sets the natural golden orange color of the pumpkin which otherwise would bleach considerably during drying. Excessive blanching, however, causes a loss in weight due to soluble compounds and makes the dried product adhere tenaciously to the tray.

Air-blast Tunnel Dehydrator Used

The air-blast tunnel dehydrator, the type which has given the greatest capacity and economy in California,

The drying time varied from 8 to 15 hours according to the temperature, humidity and volume of air used in drying as well as the load per square foot of tray surface. The usual air-flow has been about 500 lineal feet per minute between trays.

Both laboratory and commercial scale tests showed that not only could pumpkin be dried with great rapidity but was uninjured by much higher temperatures than those heretofore used. In one test some 35 tons of sliced pumpkin spread on slat trays at the rate of two pounds per square foot were dehydrated in a modern 40 foot tunnel dehydrator having an air-flow of 1,000 lineal feet per minute between trays. The trucks of pumpkin were entered at one end at 120 deg. F., and finished at the other end at 185 deg. F. The drying time was only six hours and the flavor and color perfectly preserved. In another test sliced pumpkin was dehydrated in two hours in a vertical vegetable dehydrator using a strong flow of air at a constant temperature of 165 deg. F.

The pumpkin should be ground, bolted and packed as soon as the trays have been removed from the dehydrator and scraped. If stored in open bins or shipped to a milling plant in boxes or sacks, the pumpkin absorbs considerable moisture from the air making it impossible to grind it to a flour without redrying. A mill consisting of a series of toothed beaters revolving rapidly within a steel cylinder has given the best results. The ground flour is passed through a vibrating sieve of 70 to 80 mesh and packed in



Splitting the pumpkins and removing stems and seeds preparatory to slicing by machine

has been used exclusively in dehydrating pumpkin. The usual method has been to enter the trucks of sliced pumpkin at the cooler end of the tunnel, about 110 deg.-130 deg. F., and move them progressively toward the higher temperature until drying is completed at 150-160 deg. F. The pumpkin must remain in the dehydrator until absolutely dry and crisp or it cannot be ground to a fine flour.

friction top cans to prevent absorption of moisture. Two sizes of cans are used: a 25-lb. can for baker trade and an 8-oz. can for retail trade.

Cost of Dehydrating Pumpkin

The writer carefully determined the cost of preparing and dehydrating pumpkin in three plants in 1921. The results, which are summarized in the accompanying table, do not include the

(Concluded on page 32)

Formulating Official Food Standards

Work of the Joint Committee on Definitions and Standards as it Has Thus Far Progressed is Outlined

By W. W. SKINNER

Assistant Chief of the Bureau of Chemistry and Chairman of the Food Standards Committee

IT may be postulated that the establishment of units of measure is of prime importance, indeed, in most cases essential, to all industrial activities. No intelligent person, I imagine, would for a moment question the necessity for standard physical units of measure. However, the need for measures of character and quality, while no less real, is not always so well recognized or so thoroughly appreciated.

In the great industry of food production and distribution the necessity for well defined standards has increased with the growing complexity of barter in foodstuffs. Conditions have greatly changed from a generation ago when the grocer filled the sirup jug with New Orleans molasses drawn from a barrel in a corner of the store, weighed a pound of crackers from a nearby box or cut the butter from the fresh roll recently brought in by the farmer; all in full view of the customer who could exercise, so far as he was able, although perhaps inadequately, a certain judgment as to the quality or standard of the products purchased. But today molasses comes in sealed tins, crackers in sealed boxes and the butter in oiled paper cartons. If you ask the grocer about the character or the quality of molasses, he will read you the statement professing to give the desired information, printed on a fancy engraved label, and if you ask about the quality of the crackers or butter, he will do likewise. The purchaser buys his package on faith, faith in the integrity of the producer and in the product as represented to him by the label. Because, however, in package goods the quality or character is concealed from the purchaser at the time of sale it does not necessarily follow that packaged goods are more often sophisticated than bulk goods. Indeed, whatever may have been the condition in the early days of food law enforcement, I think it can be safely asserted today that products of the very highest quality are selected for packaging and that we may expect to find products of inferior though not necessarily objectionable grade now distributed largely in bulk. There are several reasons for this but the most potent is probably the necessity for a truthful label which, with the intelligent purchaser, identifies not only the product but the producer and also the place of origin, a matter sometimes of considerable importance in judging probable quality.

Joint Committee Recommends Standards For Food Products

The Joint Committee on Definitions and Standards at a recent meeting in Washington, D. C., recommended the adoption of standards or modifications in existing standards for condensed milk, evaporated milk, concentrated milk, butter, renovated butter, cacao products, ginger ale flavor and ginger ale, according to a statement by Dr. W. W. Skinner, chairman of the Joint Committee.

The standards and definitions recommended by the Joint Committee do not become effective under the Federal Food and Drugs Act until they have been formally adopted and published as a food inspection decision by the Secretary of Agriculture, nor do they become effective under State food laws until formally adopted or acted upon by the authorized State representatives.

Heretofore the decisions of the Joint Committee have not been published until they were presented at the annual meeting of the Association of Official Agricultural Chemists, or that of the Association of American Dairy, Food and Drug officials, but the Joint Committee at its recent meeting authorized the chairman to make public at once all affirmative recommendations of the committee. This change was made because in the opinion of the committee the delay in announcing decisions until the meetings of the associations often worked a hardship on the industries affected.

The text of the recommendations of the Joint Committee are given on page 31.

Food laws both Federal and State are enacted to regulate the food industry, to prevent misbranding and adulteration, to require products to be what they seem, and to require products to be of that standard of excellence which the producer declares them to be, upon the label or package. Proper standards as units of measure, therefore, are the essentials of fair dealing and are the very foundation upon which all intelligent and efficient food law enforcement is based, the formation of such standards contributing more than any other single factor to fairness and uniformity in the enforcement of the law.

History of Food Standard Work

The importance of properly formulated food standards received the attention of the Bureau of Chemistry of the U. S. Department of Agriculture at an early period in the development of the so-called pure food movement and in 1887 the Bureau began to publish data upon the composition of manufactured foods. These latter have since served in part, as the basis for the formulation of standards. The question of standards was also early considered both by the Association of Official Agricultural Chemists and by the American Dairy Food and Drug Officials. The Association of Official Agricultural Chemists in 1897, nine years prior to the enactment of the Federal Food Law, adopted a resolution to formulate standards for food products to be used as a guide to secure closer agreement in the expert interpretation of food analyses and to serve as a more perfect basis of comparison. A committee was appointed by the Association consisting of Dr. H. W. Wiley, Chief of the Bureau of Chemistry, Dr. William Frear of the Pennsylvania State Department of Agriculture, Dr. E. H. Jenkins of the Connecticut Experiment Station, Prof. M. A. Scovell of the Kentucky Experiment Station and Dr. H. A. Weber of the Ohio State University.

This committee formulated a set of provisional standards, made a register of official food chemists, and codified existing food control legislation especially relating to standards of purity. The Committee made a report at the annual convention of the Association of Official Agricultural Chemists in November, 1898.

The Association of American Dairy Food and Drug Officials in 1901 appointed a committee consisting of Dr. William Frear of Pennsylvania, R. E. Doolittle of Michigan, and E. N. Eaton of Illinois, to confer with the committee appointed by the Association of Official Agricultural Chemists and to aid and encourage the early completion of those standards. The committee was reappointed in 1902. This committee prepared a tentative draft of definitions and standards which was published in the report of the proceedings of the convention.

Fusion of Original Committees

In the Appropriation Act for the U. S. Department of Agriculture, signed June 3, 1902, Congress authorized the Secretary of Agriculture to establish, in collaboration with the Association of Official Agricultural

Chemists and such other experts as he deemed necessary, standards of purity for food products to determine what were regarded as adulterations, for the guidance of the various states and the courts of justice. The Secretary of Agriculture under this authority appointed Messrs. Wiley, Frear, Scovell, Jenkins and Weber as a committee on Definitions and Standards. Thus the original committee of the Association of Official Agricultural Chemists became the first official Standards Committee to advise the Secretary of Agriculture. This authority was continued through the fiscal year ending June 30, 1907, though during the last two years of this period it was in slightly different form. In 1906 the Secretary of Agriculture included as members of the Committee to advise him regarding standards representatives from the Association of American Dairy Food and Drug Officials. These representatives were Messrs. M. A. Scovell, Elton Fulmer, H. E. Barnard and Richard Fischer. The standards adopted under this authority of Congress were issued in Circular 10, Circular 13, Circular 17 and Circular 19, Office of the Secretary, under the title "Standards of Purity for Food Products." The first of these circulars was issued in 1903 and the last on June 26, 1906.

Committee on Legislative Formed

The Federal Food and Drugs Act having become effective June 30, 1906, the specific authority in the appropriation bill to fix standards was no longer considered necessary and was dropped from subsequent appropriation acts. The need for uniform standards, however, became more and more apparent as work in the enforcement of the Federal Food and Drugs Act progressed, and as more of the states adopted food and drug control laws. In 1913 the Secretary of Agriculture called a meeting at Washington of all Federal and State officials concerned with the enforcement of food control laws, for the purpose of working out some effective methods of co-operation and, so far as should be practicable, securing uniformity in the administration of laws relating to the control of commerce in foods and drugs. It was recommended at this meeting that a Joint Committee on Definitions and Standards to consist of three representatives of the Association of American Dairy Food and Drug Officials, three representatives of the Association of Official Agricultural Chemists and three representatives of the U. S. Department of Agriculture, be appointed. In accordance with that recommendation the Joint Committee, or as it is generally designed "The Standards Committee," as it now exists was organized. The Joint Committee is composed, therefore, of representatives of the three national organizations which are most directly concerned in the enforcement of Federal and State food laws. The Association of American Dairy Food and Drug Officials is, as its name indicates,

an association of Federal, State and Municipal officials who have charge of the administration of laws regulating the manufacture and sale of foods and drugs. It also regulates interstate and foreign commerce in food and drugs. The Association of Official Agricultural Chemists includes among its members official chemists, whether connected with State, Federal or Municipal governments, who are under any laws charged with the analysis of foods and drugs. The U. S. Department of Agriculture is interested in food standards because of its jurisdiction over the Federal Food and Drugs Act, the Tea Inspection Act and the Meat Inspection Act.

The first representatives appointed on the Standards Committee from the Association of American Dairy Food and Drug Officials were Dr. E. F. Ladd, Food Commissioner of North Dakota, Dr. W. F. Hand, State Chemist of Mississippi, and Mr. J. S. Abbott, State Dairy and Food Commissioner of Texas. The Association of Official Agricultural Chemists was represented by Dr. Wm. Frear, Chemist, State Board of Agriculture of Pennsylvania, Mr. Julius Hortvet, Chief Chemist, State Dairy and Food Commission of Minnesota and Mr. J. P. Street, Chemist, Connecticut Agricultural Experiment Station. The representatives from the Department of Agriculture were Dr. C. L. Alsberg, Chief, Bureau of Chemistry, Dr. R. L. Emerson, Assistant Chief, Bureau of Chemistry, and Dr. I. K. Phelps, Chief, Food Control Laboratory of the Bureau of Chemistry.

Personnel of Present Joint Committee

The personnel of the Joint Committee as at present organized includes Dr. W. W. Randall, Chief, Bureau of Chemistry, State Department of Health, of Maryland; Dr. L. E. Sayre, Dean, School of Pharmacy, University of Kansas, and Mr. R. E. Rose, State Chemist of Florida, representing the Association of American Dairy Food and Drug Officials; Mr. Julius Hortvet of Minnesota, Mr. C. D. Howard, Chemist, State Board of Health of New Hampshire, and Dr. E. M. Bailey, State Chemist of Connecticut, representing the Association of Official Agricultural Chemists; Dr. W. W. Skinner, Assistant Chief, Bureau of Chemistry, Dr. F. C. Blanck, Chief Food Control Laboratory, Bureau of Chemistry, and Mr. R. E. Doolittle, Chief, Central Food Inspection District of the Bureau of Chemistry, representing the U. S. Department of Agriculture. Mr. A. S. Mitchell is secretary and executive officer of the committee.

How Food Standards are Determined

The Joint Committee has no authority in itself to put definitions and standards into effect. It is a recommending body. The definitions and standards formulated by it are considered by the organizations which appoint its members. For instance, after the Joint Committee formulates a standard for any food, that standard

is referred to the Association of Official Agricultural Chemists which may approve and formally adopt it at its next annual session. In like manner the standard is referred to the Association of American Dairy, Food and Drug officials for consideration and adoption. The standard is then referred to the Secretary of Agriculture who, if he approves, promulgates it for the guidance of the officials of the Department of Agriculture in enforcing the laws with which that Department is charged.

After a standard has been adopted by the Association of Official Agricultural Chemists, the Association of American Dairy, Food and Drug Officials and the U. S. Department of Agriculture, it is then referred to the various State and City food officials. Nearly all the states promptly adopt the standards except those which have legislation specifically prescribing some other standard. In this way many standards for foods have been promulgated and adopted by the Federal Government and very generally by State Governments. The publication containing the standards and definitions is used as a guide by food officials, by manufacturers and by courts of justice to determine what a food name signifies.

Activities of the Joint Committee

The activities of the joint committee are governed by an executive board consisting of the chairmen of the several delegations composing the joint committee, together with the secretary and executive officer of the committee. The executive board determines the matters to be considered by the joint committee and may either assign to a referee, a sub-committee, or to the executive officer, the duty of securing from every available source the best data bearing upon a product which is to be standardized. In doing this, it may be necessary to call upon members of the Association of Official Agricultural Chemists, of the Association of American Dairy, Food and Drug Officials, of the various Government Bureaus, and scientific workers elsewhere. The leaders in an industry affected may be asked for information that may have a bearing on suitable standards for the product under consideration. Not infrequently extensive research work is carried on under the direction of some member of a sub-committee and studies of manufacturing processes are made. After securing and collating information on a subject, the referee or executive officer submits the summarized data to each member of the committee. The joint committee at a subsequent meeting formulates a proposed standard and publishes it for the information of the trade and of all persons interested. If the proposed standard is subject to worth while criticism or there seems to be, as is frequently the case, a trade practice or trade controversy involved, then a public hearing may be called to which are in-

(Concluded on page 30)

Soy Bean, The Most Perfect Crop Plant

Used in the United States Only In Recent Years—Many Products Can Be Made From It

By J. J. WILLAMAN

Minnesota Agricultural Experiment Station

It might appear to be a rash statement indeed to say that any one crop plant is the most perfect, even if all things are not considered. But all things considered, the soy bean probably is the best crop plant in the most ways that we know of at the present time. Let us boldly state our reasons for so believing and then elaborate on the subject more fully: It constitutes the meat and the milk of many millions of people in the Orient. It is made into a greater variety of products for human and animal consumption than any other crop, corn not excepted. Its protein has greater nutritive value than that of any cereal. It contains more vitamins, A and B, than any other cereal. It produces more protein to the acre than any known crop in any part of the world. It is a legume.

In the year 2838 B.C., in a Chinese materia medica, appears the first mention of the soy bean. And it has been in use throughout the Orient since that time and probably before that time. It has been known in this country only about a hundred years, and it has become a staple crop just recently. But our slowness in adopting it is no criterion of its merit. There are some 300 varieties of the bean, but the one most commonly used for human food is the "yellow" bean, or Ito San. The average composition of this variety is as follows:

Water	6.4 per cent
Protein	39.3
Fat	18.7
Carbohydrate	24.8
Ash	4.9
Fiber	5.8

Exceptionally High in Protein

Thus we see that it is exceptionally high in protein. This protein has certain colloidal properties that makes it different from most vegetable proteins and very similar to the casein of milk. When the finely ground beans are boiled with water a suspension very much like milk in appearance and properties is obtained. It will curdle with acids, it will sour with the proper organisms, a cream can be separated by centrifuging, and several kinds of cheese can be made from it. In fact the cheese that corresponds to our cottage cheese is the primary food product made from the bean by the Chinese. The best way to convey an idea of how the cheese is made and its value as a food is to quote from an article by Professor Adolph of Shantung Christian Uni-

Soy Bean One of the Newest Foods in U. S.

Until 1916 the soy bean had been used but little in the United States for food, and only as a special diet for persons requiring foods of a low starch content. Much interest has been shown during the last few years in the possibilities of the soy bean for food. The United States Department of Agriculture and many schools of cookery and domestic science have conducted successful experiments in utilizing the dried beans in the manner of the navy bean and the green beans when three-fourths to full grown as a green-vegetable bean. The variety and palatability of the forms in which the bean can be served make it a very desirable article of food, and undoubtedly it will grow in favor as it becomes better known. Soy-bean meal or flour may be used as a constituent of bread, muffins, and in pastry.—From Bulletin of the United States Department of Agriculture.

versity, in the February issue of the Journal of Home Economics.

Soy bean cheese. In manufacturing bean cheese the soy beans are ground up with water and strained. The resulting colloidal solution is the soy bean milk, and has the same appearance as cow's milk. Its specific gravity is slightly greater than the latter. The bean residue which does not pass through the sieve is used as feed for hogs. Upon coagulation, this solution yields the soy bean curd, often called Chinese cheese. As far as is known, there are four agents employed in China to effect this coagulation. These are: (1) **lu**, the solid residue prepared by the evaporation of salt bittern; (2) gypsum; (3) **swan giang**, the soured bean milk whey remaining from the previous coagulation of bean curd; and (4) vinegar. The quantities of materials employed and the details of manipulation vary, of course, over different parts of China. A large variety of substances could be used to effect this coagulation.

In spite of the tremendous consumption of bean curd in China, the industry does not center in large factories, but myriads of small shops, as numerous as our own candy stores and fruit stands, make and supply the daily needs in bean curd for the mil-

lions throughout the Chinese republic. Every small town has at least one bean curd shop. Good bean curd must be manufactured fresh every day. The coagulated curd is white in color and resembles our cottage cheese. After coagulation it is pressed between cloths, cut up into squares or moulded into cakes about five inches in diameter and an inch thick, and sold to the Chinese housewife. A cake of the size indicated costs approximately \$.01 in U. S. currency. The cakes of bean curd may also be salted and dried, yielding a product which resembles our cream cheese.

Tradition says that the manufacture of soy bean curd was originated in China in 164 B.C., during the reign of the Emperor Han Wen, a man named Liu An, the duke of Hwai Nan. The common Chinese name for soy bean curd is **don fu**, often romanized **tofu**; and the classical name is **li chi**, probably meaning "the morning prayer." It is interesting to note that in China at the present day the bean curd is made in the early hours of the morning, and sold at daybreak.

Liu An was a great friend of the Buddhist monks, and it seems quite probable that he invented this bean curd in order to provide a change or delicacy to break the monotony of the monastic ration. As a matter of fact, bean curd is a real delicacy if carefully made and well cooked. Chinese who are connoisseurs on the subject assert that when so prepared it has the taste of pig's brain. Americans and Europeans eating Chinese food often eat carefully prepared bean curd thinking it is pork. With sugar it produces a dish like custard. Prepared with salt it resembles scrambled eggs.

The Tsinan variety of bean curd is made exclusively with the use of **lu** as a coagulating agent. In the following table the analyses of bean curd are compared with that of common cottage cheese.

TABLE I

Analysis of soy bean curd compared with cottage cheese

	Soy bean curd per cent	Cottage cheese per cent	Dried soy bean curd per cent
Water	82.83	53.0	43.2
Protein	10.00	19.6	25.0
Fat	3.67	23.2	12.6
N-free extract ...	2.70	2.1	5.8
Ash	0.80	2.1	13.4

It was interesting to note in dealing with a large number of samples of bean curd that the water content of the bean curd manufactured by any one shop is quite constant. Our experience showed that it was constant within one or two per cent. If calcu-

lated on the basis of water-free content, the above analyses indicate that bean curd is somewhat richer in protein than the curd obtained from cow's milk, although it is lower in fat value.

The ash of the local soy bean curd was also analyzed. Table II indicates the composition of the ash of the soy bean.

It is important to note, in the analysis, the higher values for calcium, sodium, and chlorine in the ash of the soy bean curd. The nutrition work on the soy bean itself, referred to above, indicated that its shortcoming lay in the low values for these important mineral constituents. It would seem, however, in the case of this particular one of the soy bean products, that not only has a refined preparation of protein been produced, but in its preparation have been added just those inorganic substances which help to bring it up to the rank of a food of high physiological value.

TABLE II
Analysis of ash of soy bean curd
(In percentage of water-free portion)

	Ash of Soy bean curd per cent	Ash of soy bean per cent
CaO	0.57	0.25
MgO	0.60	0.50
K ₂ O	0.71	2.48
Na ₂ O	0.33	0.19
P ₂ O ₅	0.79	1.88
Cl	0.38	0.005
S	0.09	—
Fe	0.01	—

Experiments Have Shown High Vitamin Content

That the protein of this cheese is of the highest value in human and animal nutrition is proved by the many examples to be seen in China. Bird dealers steal the wild nestlings and feed them on nothing but curd until they are able to feed themselves. In the Buddhist monasteries the curd forms a very large part of the diet of the consecrated baby clear through childhood. The Chinese coolie, noted for his physical endurance and his resistance to disease under the most adverse conditions, obtains the greater portion of his protein from bean curd.

These practices are the result of the "art" of the Orientals. The "science" of the Occidentals has but recently verified the soundness of these practices. Rat feeding experiments have proved the unusual perfection of the soy bean proteins for growth, and the conspicuously high content of vitamins A and B in the bean. The only shortcoming of this food is in the minerals, it being low in calcium, sodium, and chlorine.

An unusual thing about the make-up of this bean is that there is no starch in it. The carbohydrates consist of a small amount of sugar and a large amount of galactans. For this reason soy beans have recently assumed an important place in the dietary of diabetics. Some Japanese digestion experiments reported by Oshima in Bulletin 159, Office of Experiment Stations, U. S. D. A., show that these carbohydrates are digested to the extent of 73 to 80 per cent, which compares very favorably with those of the cereals.



The Soy Bean Plant

About a fifth of this bean is oil. A part of this becomes suspended in the bean milk in extremely fine droplets, and adds greatly to the nutritive value of the latter. The pure oil is an important article of commerce. It is obtained like all other seed oils, by extraction by pressure. In some parts of the Orient this oil is used for fuel; but mostly is it exported to the United States and to Europe, where it takes its place by the side of other vegetable oils. A considerable amount of it is hydrogenated. A recent report of the Central Laboratory, South Manchuria railroad, says that the principal industry of that region is the growing of soy beans and the pressing of the oil for export. A whole division of that laboratory is given over to the investigation of this bean and its possible uses. The press cake is used mainly for fertilizer, although obviously it must have great feeding value, either in its raw or in some modified form.

Shoyu one of Best Known Products

It was stated in the beginning of this article that more different products are made from this crop than from any other. Space will not permit the enumeration of these. But mention must be made of shoyu, a product very generally known in this country at the present time. This is a condiment that had its origin centuries ago in China or Japan, and is just as much a part of the Oriental cuisine today as salt is of ours. The best authorities place the annual con-

sumption of this sauce at eleven quarts per person. Chop suey owes its characteristic flavor to this material, which is now made in the United States in considerable quantities.

Oshima describes the making of soy sauce as follows:

In the preparation of shoyu, nearly equal parts of beans, wheat, and salt, and double the quantity of water are used. The wheat is roasted and pulverized. The beans are steamed and mashed, . . . cooled to about 40 degrees C. and the powdered wheat added (70 parts of beans to 30 of wheat), and mixed. Spores of *Aspergillus niger* are then added and the mass spread on trays, about 3 liters on a tray, and the trays stacked away . . . in a cellar, the temperature of which is kept somewhat about 4 degrees C. After 20 to 25 hours the mycelium of the fungus will be found. With the growth of the fungus there is an energetic evolution of heat and carbon dioxide. Ventilation and cooling are now necessary. . . . The temperature . . . is kept not far from 27 degrees to 28 degrees C. In about six days the growth of the fungus is completed. . . . The material is then dried and ground.

To the shoyu-koji thus prepared . . . are added water and salt. . . . This material is kept in casks and allowed to ferment. It is stirred from time to time, the stirring being at more frequent intervals as the process of fermentation advances. The fermentation is continued for one to two years, though often as long as five years. The mass is filtered and pressed and allowed to settle . . . and heated in a double boiler to 70 to 100 C. for two or three hours, after which it may be kept for a long time. To improve the taste, it is usual to add a quantity of sugar or sweet cake during the heating process.

The composition of soy sauce is as follows:

	Per cent
Total solids	39
Protein	9.3
Carbohydrates	5
Acid (as lactic)	1.2
Common salt	16

Corn is often called the King of Crops, and indeed it does produce more calories of human and animal food per acre than any other crop. But the soy bean produces twice as much protein per acre as any other crop as the following table shows:

Food Products	Lbs. protein			
	Yields per acre	per acre (digest- ible)		Calor. per acre
Corn	35 Bu.	1,960 Lbs.	147.0	3,124,240
Sw't potatoes	110	5,940*	53.5	2,851,200
Irish potatoes	100	6,000	66.0	1,908,000
Rye	20	1,200	118.8	1,807,200
Wheat	20	1,200	110.4	1,788,000
Rice, unpol...	40	1,154	55.4	1,684,840
Rice, polished	..	1,086	50.0	1,581,216
Soy beans ...	16	960	294.7	1,534,000
Peanuts	34	524	126.2	1,265,018
Oats	35	784†	89.4	1,254,400
Beans	14	840	157.9	1,123,080
Cowpeas	10	600	116.4	852,600
Buckwheat ..	24	600‡	34.5	751,800

* 54 pounds per bushel.

† Hulled kernels.

‡ Flour.

"Clean Food" Campaign Is Being Launched

Organizers of Movement Hope to Protect All Edible Products in Transportation and Other Handling

THE Clean Food Association, 505 Fifth Avenue, New York, is demonstrating that a nation-wide condition which is detrimental to the food we eat can be remedied, and the problems incident thereto solved without mud slinging, prosecution and court procedure. The association is attempting to bring before the American people the situation and the need in the food handling business from the producing plant to the table of the consumer. It has undertaken the task of putting all foodstuffs under protection during the time of transportation, handling, retail sales, delivery and storage in the home of the consumer.

It is estimated by those acquainted with the food situation that 85 per cent of the food which leaves the producing plant clean, becomes filthy before it reaches the table of the consumer. This filth is accumulated during transportation, including trucking, retail display, handling and the generally loose methods of delivery.

The Clean Food Association is an organization which is planning by means of education, publicity and information to do the following things:

To call public attention to the existing conditions.

To correct the present conditions of uncleanness in the handling, transportation and delivery of food.

The institution of the package system of food handling in all grocery stores.

Instituting in the bakery the protection of all bakery goods including pies, by the universal use of bags, cartons and wrappers.

Instituting the small package system in the handling and sale of confectionery in all its forms.

Instituting the universal use of the wrapper, protected carton and package in the handling and delivery of milk and butter.

Instituting the universal use of the package and wrapper in the handling, display, sale and delivery of all meats and fish.

Instituting the universal use of the wrapper and package in the handling of fresh fruits and berries.

To advocate the passage of legislation which will include, as permanent features, the protection of food in the various phases of its manufacture and distribution.

To do this it is necessary to have an organization properly developed and financed to do: The necessary research work, the necessary advertising and publicity work, educational work, and



O. B. Towne, General Manager of the Clean Food Association

legal and legislative work. The Association contemplates the establishment of departments of activity to cover these very lines.

Plan of Campaign

The contact with the public and the method of procedure whereby the above purposes and methods are to be set forth are as follows:

A. Display advertising of present conditions and their remedy.

B. Informative newspaper and magazine articles.

C. General use of the films, stereopticon lectures and the like.

D. Demonstrations of the use and value of

- a. The package.
- b. The container.
- c. The wrapper.
- d. Other mediums of display, handling and delivery which will meet the present problem of uncleanness.

e. The package store

1. Bakery.
2. Meat market.
3. Grocery store.
4. Confectionery store.
5. Soda fountain and ice cream parlor.

E. General distribution of all informative data through

- a. Civic organizations and associations.
 1. Chambers of Commerce.

2. Women's civic clubs and societies.

3. City improvement organizations and officers.

x. Food committees.

y. Food inspection officers.

z. Health boards and officers.

4. Specialized civic associations.

w. Grocers.

x. Butchers.

y. Bakers.

z. Druggists and confectioners.

b. Educational institutions.

1. State agricultural colleges.

2. Schools and institutes of domestic science, whether public or private.

3. Public school superintendents.

4. Private schools.

c. General use of membership in every way possible.

Before the publicity and educational work can be done the association proposes to do the following things in preparation of its materials:

1. General survey of conditions.

2. Co-operation with research laboratories of all member firms.

3. Handling the problems by co-operative effort between selected groups interested in the problems in hand.

4. Classification of all facts from the standpoint of the container manufacturer's benefit.

5. Classification of all facts on the basis of the food product from the standpoint of the public and the food producer.

Then, after all this is done the idea is to clinch the program of activity through the following work of the legal and legislative departments:

1. Study of present laws, ordinances, rules and regulations.

2. Preparation of model laws, ordinances, rules and regulations embodying the benefits advocated by this Association and aiming toward more uniformity.

3. Advocating the enactment of these laws, etc.

Organizers of the Movement

The present status of the organization work incident and necessary to the accomplishment of the above is encouraging. The effort is being made at the present time by a committee of nine, consisting of the following:

W. F. Brunner, Paterson Parchment Paper Company.

R. Gair, Robert Gair Company.

Karl Becker, Becker Paper Corporation.

J. D. Goldberg, Hamersley Manufacturing Company.

R. B. Donnelley, Central Waxed Paper Company.

John Omwake, U. S. Printing and Lithograph Company.

C. R. Wright, Waterproof Paper & Board Company.

M. Browning, Ohio Waxed Paper Company.

C. P. Wellman, National Packaging Machinery Company.

These men are bringing together 100 manufacturers to back the preliminary development work incident to the inauguration of the crusade indicated above. Very fair progress has been made considering the short time

this committee has been active, and a remarkable response has been noted from the field. It will require the backing of a large number of firms, who are interested in both packaging materials and equipment and in the food stuff itself, to put this crusade across to its successful completion.

O. B. Towne, founder of the movement and secretary of the Association says, "This movement would not be a success and would not accomplish the purposes here set down were it not for the fact that it is actually demonstrable, that goods sold in package form are clean, of high quality, offer little opportunity for waste and leakage, and are of a guaranteed quality.

Also, that package goods are demonstrable, actually economical for the wholesaler, for the retailer and for the consumer."

The movement is attracting so much attention that a short time ago, Mr. Towne was requested to give an address on the association and its purposes at a meeting of manufacturers in Chicago, and is now scheduled to deliver a similar address before a large group of manufacturers in Canada. Canadian manufacturers and food purveyors are to be included in this general movement and thereby make it a movement including the North American continent instead of the United States only.

Margarin Institute Secretary Defends Product

Dr. J. S. Abbott Says, However, Commissioner Foust Was Fair in Recent Discussion of the Subject

DR. J. S. Abbott, secretary of the Institute of Margarin Manufacturers, Washington, D. C., has sent out another bulletin regarding the program of the meeting of the Central Atlantic States Dairy, Food and Drug Officials Association, which contained an address by James Foust, director Bureau of Foods and Drugs of Pennsylvania on "The Deception Practiced in Advertising Oleomargarine," reference to which was made in The American Food Journal of June, page 16.

"The subject as worded was an indictment of the whole margarin industry. There was, however, no such intention in the minds of anyone concerned," says Mr. Abbott in his latest bulletin. He adds that "Commissioner Foust was perfectly fair and square in his discussion of the subject. He exhibited six or seven large display cards which in his opinion contained deceptive advertising matter. The words on the cards objectionable to him were such words as 'milk,' 'skimmed milk,' 'butter,' 'nut butter,' 'butterine' and 'it butters bread.' He also objected to the picture of cows in the advertisements of oleomargarine.

"He said, however, that he believed that the margarin manufacturers are doing a clean advertising and sales business and that the product for the most part is sold for what it is."

Dr. Abbott's Reply

Dr. Abbott was called upon to reply to Mr. Foust and he summarizes his reply as follows:

"In reply I pointed out that the Pennsylvania law legalizes the use of the word 'butterine' as applied to oleomargarine. I also pointed out that the term 'nut butter' began to be used in this country in about 1916 to designate the 'nut margarin' type of oleomargarine, which is sometimes labeled and sold as 'nut butter oleomargarine.' It never has been used to designate any other specific article of food. The

Bureau of Internal Revenue has permitted its use in that manner.

"The fundamental error in Commissioner Foust's theory of deceptive oleomargarine advertising was that the words 'milk,' 'skimmed milk,' 'butter,' 'Jersey,' pictures of cows, etc., should not be used in oleomargarine advertising. Milk, skimmed milk, cream, or butter or two or more of such products are always used in the manufacture of every pound of oleomargarine that is advertised. On this point, I said:

The Variation in State Laws

"There are laws on the statute books of Pennsylvania, New York, California, and possibly a few other states, unqualifiedly prohibiting the use of the words, 'milk,' 'skim-milk,' 'cream,' 'butter,' 'churn,' and the like in connection with the manufacture, sale, or advertising of oleomargarine. Such laws, on their very face, unquestionably carry with them the impression that oleomargarine does not contain any of the dairy products mentioned. Is that not clearly a wholesale misrepresentation of oleomargarine by the Legislatures of those States?

"California has another law compelling manufacturers to name the ingredients of oleomargarine on the packages of it. If we comply with the one law of that State, we violate the other law of that State. Iowa makes us put the words, 'A substitute of butter,' on packages of oleomargarine. Such words are regarded as deceptive advertising and are therefore prohibited by the State of Minnesota. There is evidence that the same influences were behind the passage of both laws.

"Deceptive and false advertising of oleomargarine unfriendly to it does not stop with these legislative bodies.

"In the Tiago County Herald of April 2, 1920, over the signature of the Newark Valley Local of the Dairy-men's League, Inc., appeared a picture

of a big fat rat and one of a little puny undersized rat. The statement was made that McCollum fed the big rat on butter and the little rat on butter substitutes which accounted for the difference in the rats. In a letter to me of April 19, 1920, McCollum repudiated the whole thing as untrue and unwarranted.

"Dr. Wiley was quoted by the Butter, Cheese and Egg Journal of April 20, 1921, as having said that 'butter contains those vital elements which none of its substitutes contain.' When I asked him if he were correctly quoted, he could not remember whether he had ever said so or not. But he said he would say so. That, in the face of the fact that Halliburton and Drummond (Journal of Phys., Sept., 1917) found that one type of oleomargarine is the equivalent of butter in every respect, and that the other type contains enough vitamins to prevent any eye disease. McCollum himself admits that even skim milk contains about half the fat soluble vitamins of the whole milk. Dr. Wiley either did not regard margarin as a substitute for butter, or he did not know how margarin is made, or he did not know the facts as printed in the literature, or he did not believe in the veracity of the investigators who have written on the subject.

"Was that not deceptive advertising of oleomargarine of an unfriendly kind?

A "Diet Experiment"

"In 1919 a Report of Rochester Milk Survey was made under the direction of Dr. Charles E. North. The report contains a statement to the effect that seven children of the Jewish Orphan Asylum gained a total of about 23 pounds in six months when butter was a part of their diet, and that they lost about 10 pounds during the same period of time the following year when oleomargarine was

a part of their diet. The authors of the Report said that oleomargarine was the cause of the decrease in the weight of the children in the latter feeding period.

"Before the announcement of such a conclusion, and even before the publication of such a report by an official body, all of the essential facts in the 'feeding experiment' necessary to a scientific analysis of it should have been in hand and carefully analyzed. In justice to all concerned, such facts should have been published in the report. They were not only not published in the report, but they were unknown to those who made the report and to the man who supervised the 'feeding experiment.'"

"Some of the essential facts necessary for an analysis of such a 'feeding experiment' and conspicuous because of their non-appearance in the Report were as follows:

"1. The weights of the children were not given.

"2. The foodstuffs in the diet of the children, other than the milk, butter and margarin, were not given.

"3. The physical condition of the children was not given.

"4. The occupation of the children was not given.

"5. The quantity and quality of butter and oleomargarine were not given.

"6. The weights of only 7 of the children were recorded.

"My letters several months ago to Messrs. North and Larson for information on the above essential facts have not even been answered at all. The Jewish Orphan Asylum told me they

are not in possession of the facts in this 'feeding experiment.' On December 12, 1921, Mr. Larson, who helped Mr. North wrote me as follows:

"'Among others, I did the field work on the part of the report dealing with the feeding of oleomargarine compared with butter.'"

How the "Experiment" was Conducted

"Mr. Armand Wyle, who was superintendent of the asylum at the time of the 'feeding experiment' was appealed to for all information on the subject necessary for a scientific analysis of it. On November 30, 1921, he wrote me as follows:

"'The 'experiment' was an accident. Weights and heights during the six months (in which oleomargarine was fed) indicated a decided reduction and I called it to Dr. North's attention. Upon the resumption of butter, the heights and weights increased. The diet and milk used during all three periods were the same. I cannot at this distance tell its exact menus, except that our menus received recommendation from dietitians and state inspectors at all times they were submitted. The children were weighed with their clothing and shoes on.'"

"Weighing and measuring children with their clothing and shoes on on December 31 and July 1 is on all fours with the other phases of this feeding experiment. No comment on it is necessary.

"Nobody knows what or how much food the children received except that each one had a pint of milk a day, and some unknown quantity of butter or oleomargarine. According to our present knowledge of vitamins the

pint of milk a day should have supplied an ample quantity of growth-promoting food accessories for the normal growth of the children regardless of whether they ate butter or oleomargarine or neither, especially if their diet was otherwise halfway what it should have been.

"Is that not deceptive advertising that unjustly hurts the margarin industry? In consideration of these cases, which are typical of hundreds of others I could recite, the cases of deceptive advertising on the part of a few margarin manufacturers themselves fade into insignificance; for the package or container of every pound of oleomargarine made in this country has been approved by the Federal Government and bears on it the word 'oleomargarine' in letters one-quarter of an inch square. That, according to the Pennsylvania law, 'distinctly and clearly describes the character of the product.' But the prejudice created against oleomargarine by the methods which I have enumerated handicaps the margarine industry without warrant. And still oleomargarine is made of the products of American agriculture. Every constituent of oleomargarine is the product of continental America too, with the single exception of cocoanut oil which for the most part comes from the Philippine Islands. These Islands belong to the United States. Those who would kill one legitimate American industry by foul means to promote another industry however deserving are not men and have no right to wear the form. They should be sent back to Nature's mint and reissued as counterfeits.'"

May Get Lower Railroad Fares for Road Salesmen

Lower railroad rates for traveling men in the food and allied industries have been brought a step nearer by the recent action of the House Committee on Interstate and Foreign Commerce in authorizing a favorable report upon the bill providing for interchangeable mileage tickets. Under the terms of this bill, which has been before Congress for more than a year, the Interstate Commerce Commission is directed to make an investigation and to order the railroads to issue interchangeable mileage tickets good upon all passenger trains and carrying all the privileges of regular first class tickets. The number of miles to be covered by such tickets and the rate of fare to be charged therefor is to be fixed by the Commission. The bill was passed by the Senate some months ago.

Traveling men in the various industries have been engaged for more than two years in an effort to secure a reduction of passenger rates. The great increases in rates authorized by the

commission during the war and the surcharge made by the railroads for pullman accommodations, it has been pointed out, have resulted in greatly reducing the mileage covered by commercial travelers. The question of passenger fares was brought up by the commission during the hearings last winter on the proposed general freight rate reduction, but when these reductions were authorized last month there was no mention made of passenger rates.

The need for changes in passenger fares was discussed by the commission in its opinion, but the majority opinion held that there was no advantage to be gained at the present time by a reduction. This opinion, however, was not concurred in by all the members of the commission, several of whom pressed the opinion that traffic on the railroads could be greatly stimulated by reduced fares for commercial travelers.

Increased Freight Rates on Butter Suspended

The Interstate Commerce Commission has ordered the suspension from June 21 to October 19 next, of freight schedules proposing to increase commodity rates on butter in straight carloads, and on butter, eggs and dressed poultry in mixed carloads from points in Texas to various eastern and northern destinations.

The rates in question would increase the freight on butter from Ft. Worth to New York from \$2.085 to \$2.445 per 100 pounds, and from Dallas to Boston from \$2.16 to \$2.149 per 100 pounds. Rates on mixed carloads from Ft. Worth to New York would be increased from \$2.325 to \$2.545 per 100 pounds, and from Dallas to Boston from \$2.405 to \$2.59 per 100 pounds.

During the period of suspension the commission will examine into the rates to determine whether present conditions justify the increase.

ANNOUNCEMENT

An interesting announcement regarding the Newspaper Food Service of The American Food Journal is printed on page 47.

EDITORIAL

The American Food Journal Inaugurates a Newspaper Service on Foods

IN co-operation with a number of the leading newspapers of the country, The American Food Journal has instituted a weekly food service intended to educate housewives and consumers of food generally in principles of diet and nutrition.

Within the past few years—particularly since the war—there has been an exceptional interest on the part of the general public in the relationship between diet and health. People are taking more interest in the character of their food. Many of the food “fads” of past years have been forgotten and there has arisen a more sensible appreciation for general knowledge of all phases of human nutrition.

Housewives and mothers, food educators and food manufacturers, to whom the newspaper service of The American Food Journal has been submitted, agree that this publication is inaugurating an important work in thus informing hundreds of thousands of newspaper readers—we hope ultimately it will reach many millions—regarding the food they eat. Moreover, the newspaper publishers to whom it has been submitted have in many instances immediately recognized the value of presenting such material to their readers.

This newspaper service will be conducted by Miss Winifred Stuart Gibbs, who recently joined the editorial staff of The American Food Journal as Associate Editor, and who has enjoyed a wide experience in practical work in nutrition and diet in addition to a good many years spent in teaching.

Many food manufacturers have expressed unqualified approval of this service, recognizing the importance of educating the consumer in food values and related subjects. Several of these manufacturers expressed the opinion that newspapers thus informing their readers about foods would establish a reader-interest in the subject which would make them considerably more valuable as advertising media for food manufacturers and distributors.

Joint Committee Adopts New Rule on Standards

AFTER many years of painstaking work the Joint Committee on Definitions and Standards has made considerable progress in its work, but the announcements of its findings have necessarily been somewhat delayed. Heretofore the decisions of the committee have not been made public until presented at the annual meeting of the Association of Official Agricultural Chemists or that of the Association of American Dairy, Food and Drug Officials, but at a recent meeting the Joint Committee authorized the chairman, Dr. W. W. Skinner, assistant chief of the United States Bureau of Chemistry, to publish at once all affirmative recommendations.

Such decisions do not become effective until they have been formally adopted and published as food inspection decisions by order of the Secretary of Agriculture.

Without doubt progressive food manufacturers will welcome the new program of the committee. No final decisions are made until each interest has had a hearing before the Committee, which meets as a court, so that the final conclusions should be satisfactory to all concerned. The fact that such a program is scientific and constructive gives it special appeal.

The recent announcement of the committee names definitions and standards for condensed milk, evaporated milk, concentrated milk, butter, renovated butter, cocoa products, ginger ale flavor and ginger ale, and are published in full

in this issue together with an article by Dr. Skinner, the committee's chairman, giving a history of the work of the committee and the problems it has been obliged to meet in this all-important work.

The effort of the committee to make its work immediately effective is commendable and should receive the earnest support of the food industry.

Differing Opinions on Spelling of Vitamine

THOSE who are in any way concerned with the rapidly changing standards and methods of the science of nutrition have for a decade or more been conscious of a breathless feeling. Like the immortal Alice we “must run like sixty just to stay where we are.”

Not only must we keep pace with the development of theories of nutrition and advance in technique, but we must, if we are to take any part in the activities of the field, use its terminology intelligently and accurately.

Dr. Casimir Funk, the first to formulate the vitamin theory of nutrition, originated the term by which these important substances have since been known.

In the course of later research certain other scientists suggested dropping the final “e” to avoid giving to the suffix “amine” a possibly misleading connotation.

Desiring to keep abreast of the times and acting under the impression that the spelling “vitamin” had been universally adopted, The American Food Journal used this form in Dr. Funk's article published in our June issue.

Unfortunately, the article was in type before we received Dr. Funk's letter of protest, so that even an explanatory note was impossible.

We, therefore, take this occasion to announce to our readers that Dr. Funk has not adopted the form “vitamin,” and that The American Food Journal will return to the original spelling until such time as the term is standardized by the scientists.

Another Protest Against Milk Compound Legislation

THE National Retail Grocers' Association, at its recent convention, added its voice to the protests which have been sent to Congress against the Voigt bill, which will prohibit the transportation in interstate commerce of compounds of evaporated milk and vegetable fat, “admittedly wholesome and nutritious articles of food, recognized as such by the Bureau of Chemistry of the United States Department of Agriculture, which products are labeled in accordance with the provisions of the Pure Food and Drugs Act,” to use the language of the resolution which the retailers adopted.

The retailers' association further points out that the bill was passed by the House of Representatives without a hearing and without the House committee “being fully informed as to the fundamental facts with respect to such legislation.” The resolution urges the United States Senate to hold a full and exhaustive hearing upon the subject before it shall pass “such vicious and destructive legislation.”

Apparently there is little need to fear that the Voigt bill will come before the Senate at this session, other matters, such as the tariff, the bonus bill, etc., claiming prior attention. And it probably will be a chastened Congress which comes back to Washington for the next session; hence a little more common sense may be expected and less subservience to special interests such as the dairy industry, which has been instrumental in the passage of the Voigt bill.

Welfare Work at Heinz Factory

Everything Possible Done to Contribute to the Happiness and Comfort of Employees

IN 1869 the late Henry J. Heinz established his first factory in a small brick building in Pittsburgh that now stands beside the large main office building of the H. J. Heinz Company. Here, where he grated and bottled horseradish grown in an adjoining garden, there was little need of considering employee welfare and in 1869 the personal welfare of employees was not considered of particularly great importance. In 1871 L. C. Noble was taken into partnership in the horseradish business and pickles were added to the line and the following year E. J. Noble was admitted to partnership and other lines were added. In 1876 the partnership was changed to F. & J. Heinz, and in 1888 the present name was adopted, the H. J. Heinz Company.

As the company extended, adding new lines, establishing new branches, the employees increased until today there are many thousands on the payroll of the company. As the numbers of these workers increased the company kept pace with progress in providing ample facilities for their comfort and welfare until today Heinz employees are as comfortably situated and as efficiently provided for as the



Heinz Hospital where first aid is administered to employees who are injured or ill



Immense dining room where employees of the Heinz company may obtain meals at cost

employees of any great industrial plant in the United States.

A candidate for employment applies at the central employment department, where all applicants for positions in the main plant are interviewed. Here, he receives a personal interview, particular attention being given by the employment department to the type of worker brought into the organization. In this interview an effort is made to give the prospective employee a proper understanding of the duties he is to perform, and at the same time, to make him feel that the company is directly interested in him. Beside the requirements of the job, for which application is being made, the interviewer outlines the possibilities of the future.

Employee Watched at His Job

When an applicant has been hired and placed, the activity of the employment department does not cease, as is often the case. Instead, there is a system of follow-up, which is principally for the purpose of determining if he is fitted for the job or if the job fits him. If it is found that the new employee is discontented with his work and he is evidently better fitted for work in another department, arrange-

ments are made for his transfer. Transferring is not confined to the new employee for the work of some of the Heinz departments is of necessity seasonal and in order to regularize employment, men and women are shifted from one department to another, in some instances for a very brief period.

Besides hiring and placing the applicant for a position, the employment department provides a service which is available to the employee at any time. The foreign born are aided in preparations for citizenship; assistance is given in filling out income tax returns; courses of study in the evening schools are outlined for those who request such assistance; and for employees whose homes are outside of Pittsburgh the department secures board and room in the city.

The Americanization classes provide instruction in English and take up law and government. At the same time other subjects are introduced into the class such as safety and efficiency as applied to the daily work in the plant. Educational activities are not confined to the department employees. Department heads, foremen and assistant foremen meet once in two weeks in the factory recreation room to discuss factory problems, an executive committee, elected by the members of this club planning the topics for discussion. About once each month these meetings are addressed by a special speaker from outside the company. The office department heads and assistants also meet

and complaints and suggestions pertaining to the office of the company, which are submitted, are discussed.

Social Activities by "57" Club

The greater part of the social activities among the employees emanate from the 57 Club, which is made up of the male members of the organization. Recently a similar club was formed among the girls. These social activities include dances, moving picture exhibitions, organ recitals, a company orchestra and the annual picnic. At the picnic all employees of the main plant are guests of the company at some nearby amusement park, the day being taken up with athletic events, a band concert and dancing. Employees of both factory and office attend the dances held regularly in the auditorium. Once each week at the noon hour there is an organ recital and motion pictures are also shown one day each week during the lunch period. At the noon-day dances held in the office recreation room, the company orchestra provides the music.

In its provisions for the welfare of the employees the company established in 1905 the Mutual Benefit Association, which is managed entirely by the employees. The association pays \$2.50 a week for the first week and \$5 a week thereafter, not to exceed fifteen weeks in one year, when members are sick. Free life insurance is provided for all employees after three months with the company. The first two policies issued are for \$250 each. New

policies are given each year until at the end of five years of service the employee holds policies totaling \$1,000, which are without cost, but are canceled when he terminates his employment.

The company hospital has in its personnel a surgeon, physician and trained nurse and there is also an emergency hospital and rest rooms for all employees. All women employees, after one year with the company, receive free dental work by the company dentist. There is a swimming pool, available to all employees. It is 25 x 40 ft. and graded in depth from 2 ft. 6 in. to 7 ft.

In the factory a dining room for men is maintained, where meals at low cost are provided, and there is another dining room for female employees. The office building is provided with a cafeteria for the office employees, where food is obtainable at actual cost.

Employees Publish Own Newspaper

The 57 News is published and distributed by the 57 Club to all Heinz employees in all branches, domestic and foreign. It was established in 1908 and is a five-column illustrated newspaper, which covers the activities of the employees individually and collectively. Following the annual picnic a special issue of this house organ is made, which generally reaches a size of ten pages replete with numerous photographs and news of the day's outing and the results of the athletic events.

Commercial Future of Powdered Milk

It Will Progress Slowly Until Its Value Has Become Established and It Has Become a Household Article

By GRAHAM STARR

THERE are different processes used in the manufacture of powdered milk. The original roller process dried milk is produced by allowing the milk to flow in fine streams onto hollow cast rolls heated with steam. The rolls revolve slowly and before they make a complete revolution, a scraper or knife attached at a proper angle, scrapes the dried product, which is in flake form, from the rolls. It is then put through a machine which breaks the flakes into small particles. It is then ready to pack.

Another method is the spray process which is extensively used and generally accepted because it produces a powder claimed to be soluble in cold water when conditions under which it is made are favorable. A brief description of this process will suffice. The milk, after pasteurization, in its original or pre-condensed state, is reduced in a vacuum pan in the same manner as evaporated milk is made; the object being

to remove a portion of the water. The milk in its reduced form is then forced through a pipe with a high-pressure pump. At the end of the pipe there is an atomizing nozzle which produces a very fine spray. The spray is admitted to a drying chamber through which passes a large volume of heated air. The dry air absorbs the moisture and passes out to the atmosphere leaving the powdered or dried milk in the chamber from which it is automatically removed and packed.

There are other processes which, however, are not used to the same extent as the spray. All of these processes are patented and a royalty is charged by some of the patentees for the use of their process. There has been a great deal of litigation and the atmosphere has not been cleared along this line.

Since there are various processes used in the manufacture of powdered milk, each manufacturer probably

thinking his the best and accordingly expounding his theories, the average user of powdered milk, much less the consumer, is at a loss to know which kind to buy. There are fundamentals which must be observed, no matter what process of manufacture is used, but it may not be appropriate in this brief description to delve into the details. However, there is a general safe guide which may well be adhered to.

Powdered milk should be soluble in cold water. By soluble, we mean that if the proper proportions of powdered milk and water are used and properly mixed by agitation the milk must all be dissolved and there should be no sediment of any character after the mixture has been allowed to stand for twelve hours. It is reported that the manufacturers of roller process powdered or dried milk do not claim their product to be soluble unless warm water is used.

It may be possible that not all of

the powdered milk has been made under the most scientific methods as the product has not been extensively used and no standard has been adopted and put into force and for some purposes an inferior quality may be used without seriously affecting the product in which it is used. By inferior, we do not wish to infer that the product is off in flavor or has a bad flavor but one which may not have quite the high qualities, such as normal milk flavor, solubility and containing all the vitamins. It is claimed by scientists that the vitamins may be destroyed in the process of manufacture though the quality, otherwise, is fine.

Powdered Milk as an Economic Factor

There are two kinds of powdered milk, whole milk and skim milk. The whole milk powder is produced from milk with a fat content the same as the average milk sold in cities so when it is diluted or mixed with water in the right proportions, it will again become fluid milk with all its natural constituents and will take the place of fluid milk purchased from a milkman in bottles excepting that the flavor is somewhat changed. However, if the powdered milk is produced by skilled operators who have the proper equipment, a finished product can be made which nearly approaches the fluid pasteurized milk.

The mere fact that powdered milk does not, when it is put back to fluid milk, taste exactly like pasteurized market milk, does not indicate that it is inferior in quality. Pasteurized milk, when it was first placed upon the market, was not acceptable to the average consumer because of its changed flavor. This prejudice continued for a considerable length of time. Boards of health, physicians in general and the large majority of milk distributors condemned the process of pasteurization and one of the largest dealers in the country fought the process for several years but by the slow process of changing the method, one by one the boards of health appreciated the value of milk treated that way and became advocates of the process.

The same was true with physicians and milk dealers until some one accumulated courage enough to require pasteurization of market milk and today there is scarcely a city of any size in the country that does not require or strongly advocate pasteurization. Some scientists believe that all milk, whether market inspected or certified, should be pasteurized.

The consumers were the last to accept pasteurized milk because of its changed flavor and it is likely that powdered milk will find its way very slowly into the American household.

Powdered skim milk is looked upon with considerable prejudice. The word "skim milk" seems to be looked upon as indicating inferiority and literally, it is inferior; inferior to whole milk and it can never take the place of whole

milk and should never be sold with the idea of substitution. Upon further thought, how many housewives use whole milk for cooking and baking? Indeed, it seems to be the practise to pour off the cream from a bottle of milk and use the skim milk for cooking, so, after all, skim milk is mostly used in the culinary department of the household.

Powdered Skim Milk a Cheap Food

From an economic point of view, powdered skim milk can be used to better advantage than that containing the fat as the cost is so low when properly marketed that it is a very cheap food. The obstacle which, perhaps, has retarded the more general use of the fat or whole milk product has been the price at which it was sold at retail. One pound of powdered skim milk will make five quarts of fluid milk and at the present price of the goods in bulk, it should be possible to sell it in small retail packages so the fluid milk would not cost more than about six cents per quart. Compare this with the price of whole fluid milk per quart and deduct the value of the cream on a quart bottle which is only from four to six cents. This will give the price of the skim milk. At the present price of fluid milk which ranges from fourteen to eighteen cents per quart, it will readily be seen that the housewife is using the skim milk at a cost of from nine to twelve cents for what there is left of a bottle of market milk after she has removed the cream.

In families with children, most, if not all, of the milk purchased, is consumed and there is none left for cooking, baking bread and pastry and for use in the preparation of vegetables. This is where powdered skim milk would be of the greatest importance and economy and it would afford a cheap food needed by children and would produce palatable and nutritious dishes for adults.

Efforts have been made to create a

sentiment against the use of powdered skim milk and laws have been passed in several states with a view of preventing the sale of that product. Before the public will become educated to the uses of powdered skim milk and reap the economic benefits, it will be necessary to teach its use in domestic science schools and bring the matter to the attention of welfare and other civic organizations, especially those organizations which work among the poorer classes in the cities where little milk is used for feeding children more than two or three years of age and none is used for cooking purposes.

This subject is no different from any other that is new. It will progress slowly until its value is established and it has become a household article. However, milk powder is only one of the many articles which have been put upon the market which tend toward a considerable saving and actual betterment of conditions and it will have its influence in building a stronger nation.

We have said little about powdered whole milk as it is our firm belief that powdered skim milk under present conditions can be used to greater advantage except in homes where economy is not so essential and where better products are demanded. It is folly for anyone to assume that powdered skim milk will take the place of the whole milk product but either or both could be used to advantage in most every household. However, the lack of keeping quality of powdered whole milk has retarded its use because the housewife has taken no more care of it than of a can of baking powder while, in reality, it should have about the same care and should be kept at a cool temperature the same as butter.

Powdered whole milk should be placed in the refrigerator and the cover of the container should be kept on tight.

Canada Permits Manufacture and Importation of Margarin Until Aug. 31, 1923

The Canadian House of Commons on June 23 passed an act to amend the Oleomargarine Act of 1919 which permits the manufacture and importation of margarin in Canada until August 31, 1923, and permits its sale until March 1, 1924. The bill enacted reads as follows:

An Act to amend The Oleomargarine Act, 1919

His Majesty, by and with the advice and consent of the Senate and House of Commons of Canada, enacts as follows:

1. Section three of The Oleomargarine Act, 1919, chapter twenty-four of the statutes of 1919 (second session), as amended by section one of chapter

thirty of the statutes of 1920, and further amended by section one of chapter forty-one of the statutes of 1921, is repealed, and the following substituted therefor:

"3. Notwithstanding anything contained in The Dairy Industry Act, 1914, chapter seven of the statutes of 1914, or in any other statute or law, the manufacture in and importation of oleomargarine into Canada shall be permitted until the thirty-first day of August, one thousand nine hundred and twenty-three, and the offering for sale, the sale, and the having in possession for sale of oleomargarine shall be permitted until the first day of March, one thousand nine hundred and twenty-four."

What Puts the "Pop" in Pop Corn

By J. J. WILLAMAN, Ph. D.

Minnesota Agricultural Experiment Station

CARR AND RIPLEY, writing in the proceedings of the Indiana Academy of Science, tell us that the "pop" of pop corn is due to the explosion of the starch grains, and that the moisture content is not a controlling factor except in the extremes of wetness and dryness. Neither does a high or low protein content affect the per cent of pop. But the time consumed in the popping is very important.

These investigators were trying to answer the old question as to why pop corn pops. Not that the pop corn will taste any better when we do know, but there is a certain comfort in the knowledge of why things are, especially, as in the present case, we are in a reflective mood as we sit before the fire and watch the merry kernels hop around in the wire cage. We all know that it is best to keep the corn in a fairly moist place, and that it is easy to heat it too rapidly during the popping. Now we have some actual figures to ponder over.

Limits of Moisture Content

If the moisture content is below 6 per cent or above 20 per cent we cannot expect to have more than half of the kernels popped. There is much variation in this, however, and we can safely depend on a sample with a water content of anywhere from 9 to 17 per cent giving a good pop. And since all ordinary storage conditions would give corn a composition within this range, we don't have to worry much about this factor.

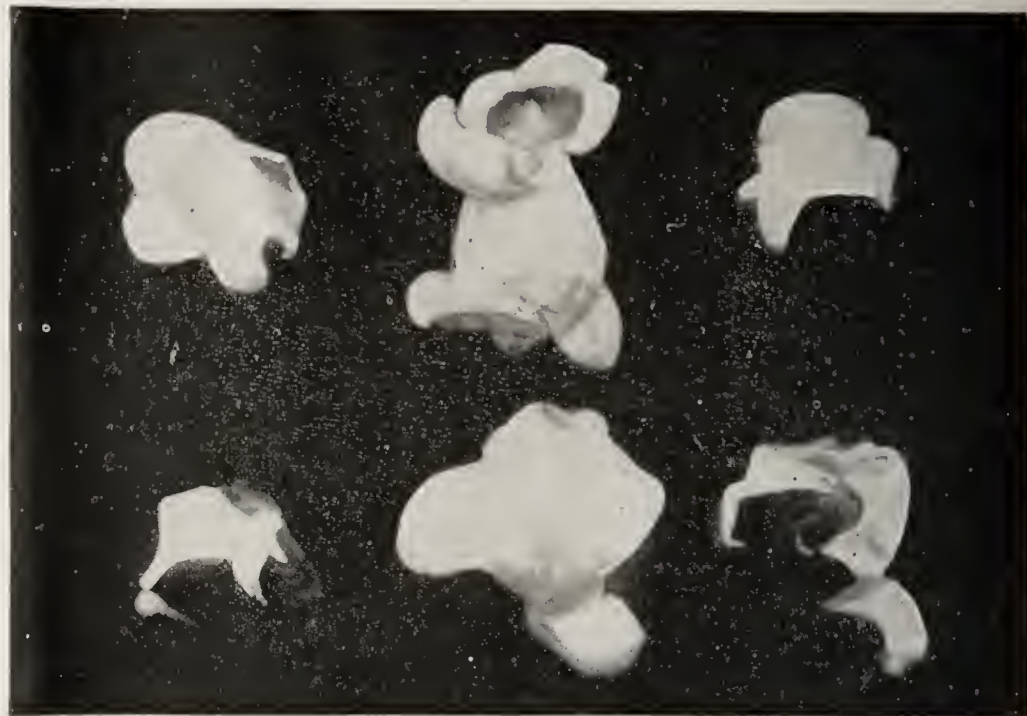
Of much more importance is the time consumed in popping. The same volume of corn was popped with different degrees of heat applied, so as to require different lengths of time to pop. The results are shown in the illustration. Apparently from 3 to 4 minutes gives the maximum volume of pop. If too short a time is given, the outer layers of the kernels get heated to the popping temperature (340 to 400 degrees F.) before the inner layers, and the kernel merely cracks open without exploding. If too long a time at a lower temperature is given, the kernels dry out too much and can't pop. I have never invented a pop corn machine, but I imagine that they are designed so as to give the kernels an exposure to the proper temperature for just about this length of time. The machine probably doesn't know it is timing the kernels, however.

No Relation Between Protein Content and Percentage of Pop

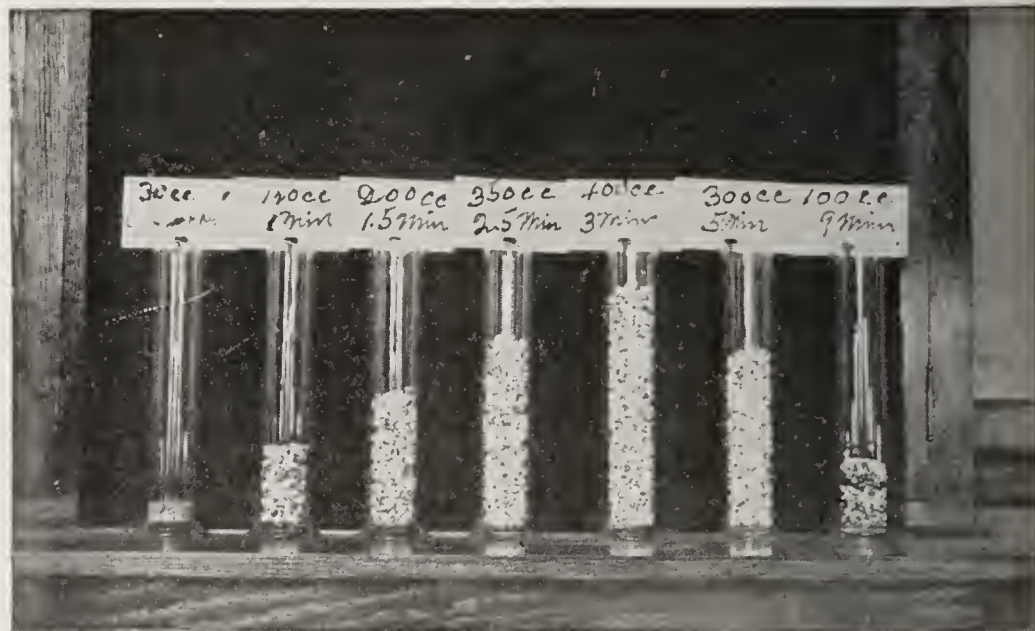
Carr and Ripley determined the protein content of a large number of samples of pop corn, and then the percentage of pop, to see whether there was any relation between the two. There was none, however. The amount of protein seemed to have nothing to do with the ability of the kernels to pop.

The kernels popped differently with different moisture contents. The illustration shows the appearance of high and low moisture samples. The former are large, jagged and rough. The latter are smaller and smoother.

Chemical analyses show that the starch becomes much more soluble during the popping process, and that there is an increase in the amount of fat extractable with either. We can imagine there is greater digestibility in the case of the big, fluffy, well-exploded kernels than in that of the more poorly popped, altho the present investigators did not touch on this point.



A group of typical low moisture kernels. Note large pieces peeled back, the unexpanded centers and smooth centers.



The volume of popped corn obtained when an ounce of corn is popped in 1, 1.5, 2.5, 3, 5, and 9 minutes.



A group of typical high moisture kernels. Note ragged surfaces, and fragmentary, flakey and irregular texture.

FOOD NEWS FROM WASHINGTON

Calumet Baking Powder Company Answers Charge

Denies That It Has Maliciously Circulated Literature on Self-Rising Flour With Intent to Injure Latter

DISMISSAL of the complaint charging violation of the Federal Trade Commission act is asked by the Calumet Baking Powder Company in its answer filed with the Federal Trade Commission.

The company, while admitting that its baking powder is sold in a few Southern states in competition with a self-rising flour, denies that self-rising flour, so called, consists, as alleged, of wheat flour into which are mixed certain leavening agents similar to those contained in baking powders. "Baking powders," it is declared, "are manufactured under strict chemical control to produce a maximum of leavening gas with a minimum of chemical residues and are required by law or competent regulation to be maintained to a definite standard of purity and strength; whereas the term self-rising flour is a misnomer, but is largely used in describing a compound consisting of low grade wheat or other flours to which are added various chemicals in an amount often far in excess of the amount required for leavening purposes, and in improper proportions for producing a sufficient leavening, and such mixture of chemicals so used would not in themselves constitute a wholesome or salable baking powder; that said mixture of chemicals so added to such flour, generally without chemical control, is not subject to the legal standards of purity and strength required of baking powders, and when

sold to the ultimate consumer such mixtures of flour and chemicals, by reason of their inferior composition, unregulated manufacture and method of packing are frequently deficient in the leavening strength legally demanded of baking powder, and the food prepared with such flours contains an unwholesome excess of chemical residues.

"Respondent denies that whenever self-rising flour is used it displaces to that extent the use of baking powder, but answering, says that owing to the frequent deficiency in such self-rising flour of the leavening strength necessary to produce a properly raised or leavened biscuit or breadstuff, baking powder is commonly added by the consumer to make up such deficiency and in many sections of the Southern states baking powders are more frequently added to such self-rising flours than to unmixed (not self-rising) flour."

Denies Publishing Adverse Opinions

The company denies that it adopted a practice of publishing adverse, disparaging and derogatory opinions, statements and comments as to the wholesomeness of self-rising flour or that it put into operation or carried into effect such practice vigorously or on an extensive scale throughout a wide area of population, as alleged, but answering says that "in order to protect itself and the public against a competitive product of inferior quality which is not controlled by the legal

standards of purity and strength which regulate the manufacture and sale of its own product baking powder, and to inform the public of the nature of said unregulated foodstuff, it upon occasions, in restricted areas of the Southern states, caused to be distributed by its regular and publicly advertised and known salesmen and demonstrators statements and opinions, generally in the form of reprints from recognized medical journals, of eminent and qualified medical and scientific investigators and food authorities who had in such publications and otherwise expressed their opinions adverse to the wholesomeness of self-rising flour; that all statements circulated by it disclosing the unwholesomeness of self-rising flour were and are true and can be so established by competent proof."

The company denies the allegation that the unwholesomeness of self-rising flour is not capable of determination by absolute test or standard, or that it is in last analysis a matter of expert opinion as to which reputable authorities may well differ, but answering, says that the unwholesomeness of self-rising flour is as easily ascertainable as the wholesomeness or unwholesomeness of flour, baking powder, or any other food product.

It is also denied by the Calumet Baking Powder Company that it concealed its connection with or interest in various methods, devices and agencies through which any such alleged prac-

tice was carried into effect, and that it caused any such derogatory expressions, opinions and comments to seem to be anonymous and therefore disin-

terested, but that all opinions and comments published by qualified authorities were voluntary and published by them in the public interest.

Bill to Establish 80 Per Cent Milk Fat Standard for Butter

A bill defining butter as "the food product usually known as butter and which is made exclusively from milk or cream or both, with or without common salt, and with or without additional coloring matter, and containing not less than 80 per centum of milk fat and not more than 16 per centum of water," has been introduced in the House of Representatives by Congressman Haugen of Iowa, chairman of the House Agricultural Committee. The bill provides that the word "butter" as defined in the statutes, including the Food and Drug Act, of 1906, shall be understood to mean butter as defined by this measure.

The National Dairy Union has issued the following statement regarding the bill:

"The dairy industry will recognize this as a clean-cut effort to bring order out of the disorder which has grown up in the situation relating to a standard for butter in the United States and its various sub-divisions. The National Dairy Union believes that such an effort is justified at this time and that this is a step in the right direction. Members of the National Dairy Union and those interested in the industry generally are urged to write their views on this subject to their senators and representatives.

"There is no existing Federal standard for butter by statute. There is a statutory definition of butter as follows: 'Butter shall be understood to mean the product usually known as butter and which is made exclusively from milk or cream or both, with or without common salt, and with or without additional coloring matter. There is an ancient standard formulated by a committee of standards without legal but with scientific authority which at the time of its adoption received the approval of the then Secretary of Agriculture. This standard provides that butter shall contain not less than 82½ per cent. of butter fat. The best evidence obtainable is that this standard never has been enforced and that there have been generally unwritten understandings with law enforcement officials that butter containing over 80 per cent. of butter fat would not be molested by agents of the Bureau of Chemistry which is charged with the enforcement of pure food laws. This will be legally confirmed if this bill is passed.

"Because of a provision in the revenue law taxing adulterated butter 10 cents a pound and specifying that but-

ter in which there has been incorporated an undue amount of water, milk or cream or both is adulterated, officials of the Treasury Department, Bureau of Internal Revenue, have adopted for their guidance in collecting this tax, a regulation to the effect that when butter contains more than 16 per cent. water, it is adulterated butter within the meaning of this law. This remains untouched and unchanged by the proposed bill.

"Three states have laws establishing 82½ per cent. butter fat standard. Six states have laws establishing 80 per cent. butter fat standard. Six or more have laws or regulations making the Federal standards the official standards in the states, the remainder of the states have no legislation or regulations on this subject.

"The national organizations in the

dairy industry and most of the state and local associations, so far as they are on record, favor the adoption of the 80 per cent. butter fat standard as provided in the Haugen bill. Most of them also favor the adoption of a 16 per cent. maximum water content. About the only question before the Committee on Agriculture which has been considering this bill is whether or not both standards should be adopted as a part of the same bill and on this the committee decided on the fat standard alone. Opinion has been expressed officially to the committee on agriculture by Dr. Campbell, acting chief of the Bureau of Chemistry, Dr. C. W. Larson, chief of the Dairy Division, U. S. Department of Agriculture, by President C. E. Gray of the California Dairy Council, by Dr. George L. MaKay of the American Association of Creameries, by the National Butter Manufacturers, appearing in person, by representatives of the American Farm Bureau Federation and by formal letters and telegrams from N. P. Mull, president; J. R. Morley and Samuel Schlosser, directors of the National Dairy Union, and by A. M. Loomis, secretary of the National Dairy Union, in favor of adopting a legal standard at this time."

Women Protest Against Food Tariffs in McCumber-Fordney Bill

A huge propaganda is under way among the women of the country protesting against the various provisions of the McCumber-Fordney tariff bill dealing with foodstuffs, tableware, and wearing apparel. Already evidences of the campaign to oppose the adoption of the schedules in which these commodities are covered come from South Carolina, Texas, and Rhode Island. Apparently every senator has received one or more copies of a resolution that has been adopted by the women and intended to be brought to the attention of the members of the Senate. The text is as follows:

"Resolved, That we protest against the food, tableware, and women's wear schedules of the McCumber-Fordney tariff bill. These schedules will increase the cost of living in every American home. They are fines levied by American men upon American women and upon American children. They ought not to be allowed to become law."

These resolutions are coming from individual women and from groups of women in civic organizations and educational societies of all kinds. In each case the resolution is the same, showing it to be part of a nation-wide propaganda. There is no doubt but that if a sufficient number of these come into Washington their effect will be very great. Congress always responds to organized propaganda. This has been evidenced in many other cases. However, from other correspondence re-

ceived by the senators, it is very apparent that the women of the country are becoming aroused against the various commodities under these three classes. They are beginning to gain an idea of what a tariff on sugar at 2.5 cents per pound on the Cuban as well as on the full duty product, the levy on flour, and the tariff on wearing apparel and shoes will mean.

Some of the food tariffs which the Senate appears definitely to have adopted are as follows:

Oats, 15 cents a bushel, House rate, 10 cents; unhulled, ground, 45 cents per 100 pounds, House rate, 32 cents; oatmeal, rolled oats, etc., 90 cents per 100 pounds, House rate, 60 cents.

Rye, 15 cents a bushel, House rate, 10 cents; rye flour, 45 cents per 100 pounds, House rate, 30 cents.

Barley, 20 cents a bushel, House rate 15 cents.

Buckwheat, 10 cents per 100 pounds, House rate, 30 cents.

Macaroni and other alimentary pastes, 2 cents a pound, House rate, 1½ cents.

Bread, 15 per cent ad valorem, House free.

Biscuits, wafers, etc., 30 per cent ad valorem, House, 28 per cent; cereal breakfast foods, 25 per cent ad valorem, House 17 per cent.

Bananas free, House rate 2 cents per bunch; dried and banana flour, 4 cents per pound.

Cheese 5 cents a pound but not less than 25 per cent ad valorem, House rate, 5 cents a pound on that valued up to 30 cents and 25 per cent ad valorem on all other.

THE CONFERENCE TABLE

A Means by Which the Manufacturer, Consumer, Research Worker and Educator May Discuss Their Common Problems

By WINIFRED STUART GIBBS

"THE time is ripe for the women of the country to get together with food manufacturers and all other groups interested in solving our food problems. I am always sorry to hear women say:

"Now that the war is over, we have no further need for thinking about food, except to plan three meals a day."

"To my mind, we have just as great an opportunity today, although of course, of slightly different nature. Food manufacturers look to the women of the country to create demands and they stand ready to meet these demands in so far as possible."

The speaker, Mrs. H. W. Hardinge, president Women's Auxiliary American Institute of Mining and Metallurgical Engineers, stopped in her preparations for a trip to England, where she will address various groups of Englishwomen, to talk animatedly about the present situation in the economic world.

"The American Food Journal," said Mrs. Hardinge, "can perform a real service to the community by emphasizing the need for team work."

"For example, we women are in large measure responsible for the present high cost of food. Not all of us are willing to shoulder this responsibility, but it is rightfully ours."

"There may be profiteering, but it is negligible. The real root of the matter lies in the public demand for foods that are out of season, for excessive expenditure in overhead."

"Then, there is the question of simplifying our meals. I frequently go to luncheons where food is served in excessive quantities, simply because the hostess is afraid of seeming niggardly. If we might return to the simple old time standards of our mothers' and grandmothers' time, our health would improve, fewer women would wail over the necessity for 'reducing,' and food manufacturers would be free to devote themselves to the business of providing wholesome, simple foods, with many of their difficulties of multiplied transportation costs solved."

Asked to give her opinion as to the best way to bring about systematic improvement Mrs. Hardinge said:

"Home Economics Committees of Women's Clubs might easily unite to create new standards; they might organize local units to work at local problems meeting with manufacturers' as-



Mrs. H. W. Hardinge

sociations, pooling the results of their activities, exchanging experiences and drawing up plans for joint action.

"The potential power of large bodies of women is far-reaching and the food field is waiting for some enterprising group to drive the entering wedge."

The Food Manufacturer and the Community

IN all the complexities of our modern industrial life none gives greater service than does the food manufacturer.

As public health guardian he compiles data on dangers incident to spoilage in canned food, as research worker he enlists the service of the skilled industrial chemist that our foods may have the benefit of scientific control and new by-products be developed; as economist he points out the true reasons for high food costs; as educator he retains the services of the best known nutrition experts and freely publishes the results of their labors for the benefit of the public; as physicist he sets forth the advantages of vacuum drying of food; as community worker he organizes Food Institutes for study and conference; as legislator he acquaints himself with

the last word in food standards and sets himself to the task of going just one step beyond the requirements of those standards; as enlightened employer he sees to it that his force of men and women workers do their work under sanitary conditions and amid attractive surroundings, all this and more, does he do, not to mention his chief function, that of feeding the race!

The Conference Table asks this versatile member of society, this "all round man," this food manufacturer, to give of his experience to the members of this special group, as he is already doing to larger groups out in the business world.

The American Food Journal would like to publish stories of special achievement in the field of food manufacture.

Write us frankly, telling what you have accomplished.

Have you helped in stabilizing food prices? Then let us hear the details.

Has your plant done some specially interesting work along the lines of scientific control, or of research? Will you not give other manufacturers the benefit.

Perhaps your special contribution has been in helping to develop standards of purity in foods.

Whatever your special accomplishment The American Food Journal asks the privilege of hearing about it and of passing on this information.

New Features For Classes in Foods and Dietetics

WITH "Home Economics In Business" occupying an officially accredited place on the program of the coming convention of the American Home Economics Association, progressive instructors in foods and dietetics know that the time is not far distant when they will be expected to train students to enter this field.

How shall the "problem" of foods as related to business be stated? How shall subject matter be related to that problem? How shall practical field work for students be planned?

To make a vital connection between the class room and the field of food manufacture and distribution, the instructor must study local conditions for the purpose of lining up the more important questions.

Are certain manufacturers achieving notable results along the line of scientific research? Do certain others need to have the importance of this line of endeavor brought home to them? What local manufacturers are best fitted to give information on commercial canning or baking methods, as they affect public health? What is the Government doing to help the food industry?

These are but a few of the suggestive lines of inquiry.

The next step, that of relating the academic to the practical, is equally interesting.

Courses in physiological chemistry must be developed if the student is to confer intelligently with the industrial chemist and qualify to join forces with him; time studies must be developed to train the student in deciding just when and where it is desirable and economical to use

commercially canned or commercially baked products; courses in foods and courses in governmental procedure must be co-ordinated before the student can speak intelligently on the subject of formulating and enforcing food standards; and even then we have but made a beginning.

The third phase of this program of co-operation and co-ordination, the planning of practical field work is, perhaps, the most fascinating of all.

Here are a few practical field projects:

Enlist the interest of a progressive manufacturer so that he will invite one or more students to enter the commercial laboratory as assistants to the plant's chief chemist.

Ask the hospitality of a baking plant so that a student may make first-hand observation of time saved by commercial baking.

Seek an opportunity for a student to study the painstaking care which

progressive manufacturers exercise, to keep their products up to Government standards.

Make first-hand contacts for a student or students with the leading wholesale and retail food associations that cost studies may be made.

Send a student to a manufacturers' convention that he may learn something of the problems of this side of the food field.

Let one student make a study of all plants employing dietitians or food specialists with analyses of results accomplished.

Set a student at the task of ferreting out misleading food advertising; to another give the task of writing a brief summary of the views of local manufacturers as to what authority should stand behind good advertising.

The instructor will think of numberless other opportunities for broadening her students outlook. The fact that the courses must be suggestive rather than conclusive adds to their educational value

The Discovery of New Vitamines

Scientists Have Added Other Food Factors to Those Previously Discovered—Further Vitamines May Be Found

THE vitamine theory of nutrition was first formulated by Dr. Casimir Funk, who gave the name vitamines to certain chemical substances that were evidently essential to life.

The results of this earlier work in vitamine determination have become more or less familiar but to present a clear statement of the progress made since that time the following summary is given:

Through the work of Dr. Funk and other scientists three factors were determined; the first, soluble in fat, was known as vitamine A. Its chief sources were thought to be butter fat, egg yolk and some other animal fats, as well as leafy vegetables.

The second, vitamine B, soluble in water, was found in milk, whole grains, particularly unpolished rice, and dried legumes. This was the vitamine found to be necessary in preventing beri-beri.

Vitamine C, the third of the original three factors, was the anti-scorbutic vitamine, found in oranges, lemons, tomatoes and other fresh fruits and vegetables.

To the almost continuous research of Dr. Funk, Dr. E. V. McCollum of Johns Hopkins University, and other scientists, we owe our present knowledge of the fact that additional vitamines have been detected.

As the list of vitamines stands today we learn:

That vitamine A has apparently been split into two, one retaining the original name, vitamine A. This is the

anti-ophthalmic factor. The other is the anti-rachitic vitamine, and will probably be known as vitamine E.

The mode of action of the antirachitic factor is at present very mysterious. It is not as essential to life as other vitamines are. In the presence of sufficient phosphorus in the diet or by exposure to sunlight its requirements seem to be greatly diminished. It remains to be proved whether the antirachitic factor should be included in the class of vitamines.

An interesting fact in connection with this splitting up of the old vitamine A is that milk and butter fat contain only the original A vitamine, while codliver oil contains both vitamine A and the newly detected vitamine E.

The differentiation of these two vitamines was first suggested by Hess when he found that cream and whole milk would not prevent rickets in children. This fact has since been confirmed by Findlay in Glasgow and by some others.

Now as regards the vitamine originally known as vitamine B; this also has been split into two, the one retaining the original name vitamine B, this being the anti-beri-beri substance. The other will be known as vitamine D. Vitamine D is the factor that promotes the growth of yeast. It is believed to be a nitrogenous substance, simpler in composition than vitamine B.

According to Dr. Funk other vitamines are likely to be detected.

In was in 1911 at the Lister Institute that Dr. Funk began the research which

led to the discovery of vitamines. It was then known that a diet of polished rice produced beri-beri while one of unpolished rice prevented this disease. The theory was suggested that an amino acid, a component of proteins, was missing from the polished rice but might be found in the polishings.

Dr. Funk found this theory to be mistaken and prophesied that further research would prove the existence of a series of substances necessary to growth and life. That this prophecy is being realized is evidenced by the great advance now being made in our knowledge of the so-called deficiency diseases.

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BOOK REVIEWS

Discussion of Stability of Vitamines Toward Heat

Vitamines in Canned Foods, E. F. Kohman, National Canners' Association Research Laboratory, Bulletin No. 19L, Washington, D. C., May, 1922.

Beginning with a summary of results of work done on the vitamin theory of nutrition, this pamphlet proceeds to a clear statement of the stability of vitamins toward heat as applied in commercial canning processes.

Commenting briefly on the fact that all vitamins are somewhat affected by heat, the author discusses in detail the behavior of vitamins fat soluble A, water soluble B, and water soluble C, when subjected to various degrees of heat.

A is shown to be fairly stable during the average canning processes. When an appreciable amount of this vitamin is lost it is fair to assume that the loss is due to oxidation, since it is when the product is heated in the presence of air that the real losses occur.

Experiments with vitamin B have been somewhat poorly controlled, so that results are not yet conclusive. In general, however, B seems to be less affected by oxidation than A and C. The author points out the fact that failure to realize that heat may affect constituents other than vitamins, and that fresh milk may vary several hundred per cent in vitamin content has caused considerable confusion. Careful reading of the discussion will do much to clear up this confusion.

In regard to vitamin C scientists agree that more work is needed before results may be regarded as conclusive.

The loss of C in the pasteurization of milk is probably due to oxidation, this being the vitamin most susceptible to this process.

Experiments with each vitamin are summarized as follows:

Vitamin A

Effect of heat and oxidation on vitamin A in fats.

Effect of cooking processes on vitamin A in food products.

Effect of drying on vitamin A in food products.

Effect of saponification on vitamin A in fats.

Vitamin B

Effect of heat on vitamin B in yeast, in seeds, meat and eggs, milk and vegetables.

Effect of drying on vitamin B.

Effect of acids and alkalis on vitamin B.

Vitamin C

Effect of heat on vitamin C in fruits, milk, cabbage and other vegetables.

Effect of drying on vitamin C in fruits, milk and vegetables.

Effect of alkali on vitamin C.

Effect of oxidation on vitamin C.

These studies are presented in tabular form and the pamphlet makes a real contribution to the literature of vitamins. A fine bibliography gives approximately two hundred references on this important subject.

Emerson's Nutrition and Growth in Children

Nutrition and Growth in Children. By William R. P. Emerson, A.B., M.D. New York, D. Appleton & Company, Ill., 12 mo.

Dr. Emerson was among the first to do systematic work on the problem of the undernourished child. The present volume is a clearly written account of the inception and growth of the movement known as Nutrition Clinics for Delicate Children, Inc., of which Dr. Emerson is president.

Beginning in 1908, Dr. Emerson studied the problem from several angles and became convinced that it was chiefly one of individual health habits, rather than one of poverty or even of unwise selection of food. In clearing his ground for action, Dr. Emerson relegated to the background all attempts to instruct mothers in wise selection and preparation of food, the conclusion being that the nutrition class and the nutrition clinic, taken jointly, furnished the one avenue of approach.

The book shows the steps that should precede the formation of a nutrition class or clinic, selection of children, diagnosis, etc. It then proceeds to tell just how to organize, how to conduct and how to study results. Suggestions are given for record forms, individual weight cards, food and diet charts and numerous other working tools. There are diet lists and tables giving food values, as well as a bibliography on nutrition.

There can be no question that this work solves many of the difficulties met in combating undernourishment. As Dr. Emerson outlines them, the advantages of the method are: Economy of time, securing of parents' co-operation, visualizing of health essentials, and several others.

Granting, then, that the work is a vital force in child saving, dietitians will wish to give Dr. Emerson a word of friendly challenge when he says, "Improper diet is a significant item, but it is not the first or chief cause of malnutrition, but actually fourth on the list." (p. 198).

If he had said, "Improper diet is not always the first cause of lowered vitality," the dietitian would agree. Certainly fresh air, exercise and rest are of vital importance in making healthy children. The diet specialist, however, pleads that a knowledge of dietetics is a necessary qualification for a good

"nutrition worker." Dr. Emerson does not include this in his list. (p. 193.)

The dietitian pleads also for a more accurate use of the word "nutrition." "The action of promoting growth or repairing waste among organic bodies," Webster calls it, giving as the medical definition, "The process of assimilation of food."

This is not hair splitting, but a straightforward attempt to straighten out much popular confusion. Certainly, fresh air, exercise and rest would be powerless, if there were not first provided a supply of proper food to repair the waste tissue broken down by that same exercise!

Finally, the dietitian takes exception also to Dr. Emerson's optimistic statement that the daily diet of the untaught industrial household is satisfactory. First hand knowledge of the diets of several thousands of these homes leads to the conclusion that Dr. Emerson and his co-workers owe more than they realize to the teacher of dietetics! At least one broad minded "nutrition worker" is seeking guidance of a dietitian, saying, "I must have a background of knowledge of metabolism before I can simplify my food talks for my nutrition class."

Dr. Emerson has done a brilliant piece of organization and administration. One hopes that he will see fit to seize the friendly hands being held out to him by dietitians, and to realize that in the nutrition field, as in most others, "All are needed by each one."

Do Colon-Typhoid Micro-Organisms Survive in Carbonated Beverages?

Viability of the colon-typhoid group in carbonated water and carbonated beverages. By S. A. Koser and W. W. Skinner. Reprinted from The Journal of Bacteriology. Vol. VII, No. 1, January, 1922, for the Bureau of Chemistry, U. S. Dept. of Agriculture, Washington, D. C.

Since 1885 Science has been studying the destructive effects of CO₂ on certain micro-organisms. Experiments showed that when carbon dioxide was passed through water the number of micro-organisms was greatly decreased.

Later it was found that the destructive effect of CO₂ under high pressure was relatively feeble.

In 1893 several experiments were carried on which seemingly established the fact that various pathogenic organisms were able to develop after exposure to from 60 to 70 atmospheres of CO₂ for several hours. Again these conclusions were contradicted.

Since that time experiments have been almost continuous. The present

pamphlet outlines these experiments, tabulating results and giving comparisons between various soda fountain beverages.

Summarizing the work done in this field we find that:

Under the conditions of these experiments carbonation exerts a distinctly harmful effect on members of the colon-typhoid group and their viability in carbonated water is much shorter than in plain tap water.

In non-acid beverages the organisms may persist for a slightly longer period than in carbonated water.

Some organisms are more readily destroyed than is the colon bacterium. Certain spores were found to be quite resistant to carbonation.

Finally, the authors state emphatically that the results obtained do not warrant the conclusion that water of a low sanitary quality may safely be used by the soft drink industry in preparing carbonated beverages, nor can carbonation be relied upon to destroy evidences of pollution.

Information Regarding Bacteria in Powdered Milk

Bacterial Count in Milk Powder, by G. C. Supplee and V. J. Ashbaugh. Reprinted from *The Journal of Dairy Science*, Vol. V, No. 2, March, 1922.

This study of the bacterial count of powdered milk is especially welcome, because of the fact that most of the information available is concerned with pathogenic bacteria only.

Granted that a high bacterial count does not materially affect the sanitary and keeping qualities of powdered milk, it is highly desirable to compile such information, and the author has rendered important service in this regard.

Carefully tabulated analyses show the number of bacteria in milk powder after manufacture, after storage, and after artificial inoculation.

The conclusions are as follows:

Bacteria appearing over 1,000 per gram in powder made by the Just process are usually due to recontamination.

The bacterial content of dried milk, before being subject to recontamination, is probably not affected by the number present in the liquid milk.

The bacterial content of powder made by the Just process is lower than that made by the spray process.

Bacteria in milk powder die off rapidly in storage.

Large numbers of bacteria in desiccated milk probably do not affect the keeping qualities, provided moisture concentrations are present.

Valuable Information About Milk

Milk the Best Food, by H. Steenbock and E. B. Hart, Bulletin 342, Agricultural Experiment Station, University of Wisconsin, April, 1922.

Information concerning the place of milk in the diet is always welcome, particularly when in popular form.

The conclusions of the authors of this pamphlet are that for the young, milk is a perfect food; that milk should not be regarded as a beverage; that the protein of milk are particularly valuable, that milk makes good any mineral deficiencies of the diet, that milk contains all the known vitamins, that filled milk should not be used in infant feeding, that vitamins A and B are not susceptible to heat, that whole milk is a great factor in the safety of the diet. Numerous illustrations show the progress of the experiments on which the conclusions are based.

Quicker Way of Canning Found in Missouri

A new and easier way of canning is announced by the home economics specialists of the Missouri Agricultural Extension Service in accordance with recent progress reported by the United States Department of Agriculture.

Recent investigations seem to indicate that blanching is not essential to success in canning. Preliminary cooking where necessary, is recommended in place of blanching.

It is considered more desirable, to pack the product in the jar without any precooking as it saves time and work and conserves the food value of the product. Precooking is necessary, however, in: (a) corn, to set the milk; (b) products that need to be shrunk; or (c) products from which the skin must be removed. Products such as green beans, when

Investigation on Use of Dry Milk in Infant Feeding

The Basal Metabolism of Infants Fed on Dry Milk Powder, by Fritz B. Talbot, M.D., assisted by Margaret B. Moriarty, S.B., Reprint No. 724, from the *Public Health Reports*, January 20, 1922. Government Printing Office, Washington, D. C., 1922.

These metabolism studies show either a normal or slightly elevated "basal" metabolism of infants fed on dry milk powder. Twelve cases were studied and the progress of each is charted, each chart being accompanied by notes on physical condition.

packed directly into the jar, may shrink somewhat when processed. However, space left in the top of the jar is not a consideration except from the standpoint of economy in space, as it is not necessary to have jars full in order to have the product keep. If the product is packed carefully it will tend to insure full jars. All products except shelled beans, corn and pears should be packed as close as possible without crushing.

It is very important to use great care in timing the product while processing.

The correct time for every product is given on a new canning card published by the Agricultural Extension Service at Columbia. It carries full directions for the new and easier way of canning and will be sent free on request.

To Proceed Against Use of Bleached Flour in Pennsylvania

In response to numerous complaints concerning the quality of much of the flour sold in Pennsylvania, the Bureau of Foods of the Pennsylvania Department of Agriculture will make an effort to determine just what proportion of the flour sold in the State has been artificially bleached and what proportion is being sold without such adulteration.

James Foust, director of the Bureau of Foods, says: "This is a matter of vital importance to the whole people since there are few families who do not use large quantities of flour or bread in the course of a year. On account of the complaints made by consumers, a thorough and complete investigation will be made, and proceedings instituted where bleached flour is being sold."

Must Brand Cheese in Wisconsin

Effective July 1 all cheese coming into Wisconsin from other States must be marked to show that it is not Wisconsin-made, according to General Order 18, issued by the Wisconsin Department of Markets. The purpose of the order is to identify out-of-the-

State cheese inasmuch as all Badger cheese is required to bear the State's official statement of grades, whereas cheese not made in Wisconsin is not entitled to the Wisconsin certification of quality. The Department of Markets has also ordered that after July 1, all Swiss, brick and limburger cheese must show the date of removal from the press, together with the designation of "M," if such cheese was removed from the press in the morning, and the letter "E" if in the evening. The marks appear upon the cheese itself or upon the wrapper or container. The name and address of the packer constitute a sufficient statement showing that the cheese was made outside of the State, according to the ruling of the department.

United Kingdom Favors Finnish Condensed Milk

Finland promises to become an important factor in the world's production of condensed milk according to Consul Davis. Finnish dairy products—butter, cheese, milk—are in favor among the countries where they have been so far introduced, and at the end of last year a small milk cannery was established at Valio which makes weekly shipments to England. The especially good quality of the milk has increased the demand and experts in England have given it very favorable criticism.

Food Flavors: Their Source, Composition and Adulteration

Composition of Various Products as Set Forth in Standards of Department of Agriculture

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PART III

First article published in May; second in June.

IN Parts I and II of this series of articles on food flavors we have considered thirty-seven flavors, the last one being dandelion. The reader who has accompanied us thus far on our journey into the field of food flavors, has, we believe, begun to appreciate that it is a very wide one. In European countries and in the Orient many flavors are used while in the United States there is a tendency to consume relatively large quantities of a limited number of popular flavors, such as ginger, vanilla, lemon, and orange, and to use imitation fruit flavors. A particular flavor used alone may be deemed undesirable or even offensive by many people and yet be an important ingredient of a pleasing combination of flavors. The possibilities of blending flavors of natural origin to form new compounds, therefore, are very great, and the successful blending of flavors is constantly being accomplished as evidenced by the popularity of new brands of bottled sodas and of other flavored food. A continuation of the discussion on individual flavors, which includes the standards of the United States Department of Agriculture in those instances where standards have been promulgated, follows:

38. Dill: Dill seeds are the dried fruit produced by an annual herb which is cultivated in Europe and America. They are used for flavoring and in the preparation of dill pickles and should contain not more than ten per cent (10%) of total ash, nor more than three per cent (3%) of ash insoluble in hydrochloric acid. The seeds yield on distillation three to four per cent (3-4%) of an essential oil which closely resembles in composition, though not in odor, oil of caraway. The oil consists almost wholly of limonene and carvone.

Estragol: (See Taragon).

39. Fennel: Fennel seeds are the dried fruit obtained from an annual or perennial herb cultivated in France, Germany, Russia, Galicia, Roumania, and elsewhere. Ground fennel seeds, which have an agreeable odor and aromatic taste, are used to flavor cakes, etc. They should contain not more than nine per cent (9%) of total ash, nor more than two per cent (2%) of

ash insoluble in hydrochloric acid. The oil distilled from the seeds is of two varieties, sweet and bitter, the sweet being the ordinary commercial variety. Four to six per cent (4-6%) of oil is the usual yield, which, however, is quite variable. The chief constituents of the sweet oil are anethol and fenchone, the latter having a bitter and camphor-like taste. A good sweet fennel oil will contain about sixty per cent of anethol. Anethol is the principal constituent also of aniseed and star aniseed oils which have been mentioned previously. Sweet fennel oil is employed to a certain extent in sarsaparilla, root beer, and similar types of flavors.

40. Fenugreek: Fenugreek seeds are the dried fruit of an annual leguminous herb which is cultivated in the Mediterranean region, parts of central Europe, Morocco, Egypt and India. The seeds have an aromatic flavor and are used in curry powders and in the manufacture of imitation maple flavors. The comminuted seeds are reported to yield about 0.014 per cent of a brown oil with an intense odor.

41. Galangal: Galangal is the aromatic, root stalk or rhizome of a plant cultivated in China and Siam. The oil obtained by macerating the ground roots in water and distilling has a sharp taste and pungent camphoraceous odor, and consists mainly of cineol and eugenol. The yield of oil is from 0.5 to 1 per cent. Oils of pimento, cloves, and lemon, and turpentine are reported to be adulterants of oil of galangal.

42. Garlic: This plant is a hardy bulbous perennial of the lily family and of the same genus as the onion. It has been much esteemed as a condiment since the earliest times. The essential oil is distilled from the entire fresh plant, the yield being about 0.005 to 0.009 per cent. The characteristic odor of the oil is due to a sulphur compound.

43. Genepi: The leaves and tops of Alpine genepi are used to flavor beverages. The dried leaves yield from 0.15 to 0.30 per cent of volatile oil.

44. Gentian (Yellow gentian): The gentian plant grows in the Alps, Pyrenees, Apennines, and in other mountainous or elevated regions of Europe. The dried rhizome and roots and the extract made therefrom are well known to the medical trade. Extract of gentian has an agreeable odor, is very bitter and of a dark brown color. The bitter principle is due to gentiopicroin,

a glucoside. The extract is used to impart a bitter taste to certain beverages.

45. Geranium (Rose geranium): The geranium plant from which oil of geranium is distilled consists of several species and varieties of the genus *pelargonium* which are cultivated in Algeria, South of France, Corsica, Spain, Italy, Sicily, Reunion and elsewhere. The oil is classed as a perfume, but is included here because it is used in minute quantities as an ingredient of compound beverage flavors. It is distilled from the whole plant, which is gathered just before the opening of the flowers. The odor of the oil varies considerably depending upon the species of plant which is distilled, but may be described in a general way as a rose odor. The yield of oil varies also but is about three-tenths per cent (0.3%) of the weight of the fresh plant. The principal constituents of the oil are the alcohols, geraniol and citronellol, and esters of these alcohols. The esters of geranium oil are usually expressed as geranyl tiglate.

46. Ginger: Ginger is the dried rhizome or root stalk of a plant about three feet in height, which is cultivated extensively in Jamaica, Africa, China, and other tropical countries. The plant has a biennial or perennial root stalk and an annual stem. While the flowers and stem of the plant are fragrant, the root is the highly prized ginger of commerce. The root is dug after the stems turn white and before it becomes tough, and is then scalded (black ginger) to prevent sprouting, decorticated or scraped (white ginger), or peeled and limed (limed or bleached ginger). Calcutta and African black ginger, and Jamaica Cochin and Japanese white ginger are well known commercial varieties. Ginger should contain not less than forty-two per cent (42%) of starch, not more than eight per cent (8%) of crude fiber, not more than one per cent (1%) of lime (CaO), not less than twelve per cent (12%) of cold water extract, not more than seven per cent (7%) of total ash, not more than two per cent (2%) of ash insoluble in hydrochloric acid, nor less than two per cent (2%) of ash soluble in cold water. Jamaica ginger should contain not less than fifteen per cent (15%) of cold water extract, and should conform in other respects to the standards for ginger. Limed

ginger, bleached ginger, should contain not more than four per cent (4%) of carbonate of calcium, nor more than ten per cent (10%) of total ash, and should conform in other respects to the standards for ginger. The root yields two to three per cent (2-3%) of volatile oil of ginger which has the characteristic ginger odor but does not possess the pungency of the root. Oil of ginger contains terpenes (chiefly dextro-camphene and beta-phellandrene) and three important oxygenated constituents, cineol citral and borneol. Other constituents have been reported. Both the spicy aroma and the pungency of the root can be extracted with alcohol and other menstrua. The active pungent principle of ginger, namely, gingerol, is not present in the volatile oil of ginger. Ginger and ginger products are highly prized by the beverage and other industries and large quantities of the root are imported. Ginger extract should contain in each one hundred (100) cubic centimeters the alcoholic-soluble matters from not less than twenty (20) grams of ginger. Foreign starches, cayenne, and mustard hulls, and exhausted ginger have been reported as adulterants. The several varieties of ginger are adulterated also by mixing with each other or substituting one for another.

Glycyrrhina (See Licorice)

47. **Guaiac:** Guaiacum wood is the heart wood of a tree 40 to 60 feet high growing in tropical America. The wood which is imported to the United States is extremely hard and dense and contains about twenty-six per cent (26%) of resin and about eight-tenths per cent (0.8%) of bitter pungent extractive matter. Guaiac resin is obtained from the wood by collecting exudations from incisions made in the tree trunk, by heat treatment of billets of the wood, by boiling the chips or sawdust in salt water and in other ways. The wood or the resin is employed in the manufacture of certain bitters. The resin is sometimes adulterated with pine resin.

48. **Hops:** Hops are the dried cones or strobiles of a twining perennial plant which is extensively cultivated in parts of New England, New York, Michigan, California, England, Germany, and elsewhere. The odor of hops is strong and fragrant and the taste aromatic, bitter and slightly astringent. The distillation of the flowers yields three-tenths to one per cent (0.3 to 1%) of an oil which has a penetrating hop odor. Gurjun oil has been reported as an adulterant of oil of hops. Infusions of hops are used to flavor beverages.

49. **Horsemint:** Horsemint is an American plant of the mint family growing in light soils from New York to Texas and West to Wisconsin. The plant has an aromatic odor, a warm, pungent and a slightly bitter taste, and yields a volatile oil on distillation. The oil contains fifty-six to sixty-one per cent (56-61%) of phenol (thymol) and higher oxygenated compounds, and is used in pickling and in horseradish preparations.

50. **Horseradish:** Horseradish is the perennial root of a plant grown extensively in this country and Great Britain. The grated root preserved in vinegar is a familiar condiment and

has a decidedly pungent odor and taste. On distillation with water the root yields a very pungent, acrid oil, to which the desirable properties of the root are due.

51. **Hyssop:** Hyssop is a bushy plant of the mint family, growing in Europe and the United States to a height of about two feet, and bearing small clusters of blue flowers. The flowers and leaves have an agreeable aromatic odor, a warm pungent, slightly bitter taste, and yield on distillation up to about three-tenths (0.3%) of an essential oil. The principal constituent of the oil is a saturated ketone.

52. **Jasmine:** The common white jasmine is cultivated in the South of France for the fragrant oil which is obtained from the flowers by an absorption process. The oil is reported to contain about sixty-five per cent (65%) of the ester benzyl acetate and smaller quantities of linalol, linalyl acetate, benzyl alcohol and certain other constituents. While jasmine and imitation oils of jasmine are used almost wholly as perfumes, they are used also to some extent in blending imitation fruit flavors.

53. **Juniper berries:** The common juniper plant is an evergreen shrub usually four to six feet high but sometimes higher. A trailing variety grows in northern countries. The plant is widely distributed in Europe, Asia, and North America. The dark blue berry-like fruit has a high content of sugar and a characteristic flavor due to oil of juniper which is present to the extent of five-tenths to one and five-tenths per cent (0.5-1.5%), the yield varying considerably in different years. Juniper oil contains the terpenes, alpha pinene, and camphene, a sesquiterpene, and a small amount of oxygenated constituents, chiefly terpenol. The crushed berry or the oil is used in the manufacture of beverages and beverage flavors. The berries and the essential oil have an aromatic odor and a pleasant, slightly bitter, terebinthinate taste.

54. **Kola (Cola):** Kola nuts are the fruit of a large tropical tree growing on the West coast of Africa, in East India, Ceylon, Jamaica and Brazil. The cured nuts contain caffeine to the extent of about seventy-two hundredths to two and two-hundredths per cent (0.72-2.02%). They are reported also to contain about two hundredths per cent (0.02%) theobromine, an important constituent of cocoa. Extract of ground kola nut is employed as an ingredient in certain beverage flavors.

55. **Lavender:** Lavender is a small shrub which is cultivated extensively in England and the South of Europe for the flowers and for the essential oil distilled from them. The flowers and the oil have a strong, fragrant odor and an aromatic, warm, slightly bitter taste. The oil, which is used mainly as a perfume, contains linalyl acetate, other esters of linalol, limonene and a sesquiterpene.

56. **Lemon:** The lemon tree is a straggling bush or small tree about twelve feet high, apparently introduced by the Arabs into Spain between the twelfth and thirteenth centuries. It is very fruitful, producing in favorable seasons and localities as

many as 3,000 fruits. It is extensively cultivated in southern Italy and Sicily, Florida, and California, but is grown also in France, Spain, Portugal, Australia, New South Wales, Jamaica, and elsewhere. The fruit is gathered while still green, the finest specimens being packed and the remaining fruit or culls reserved for the manufacture of lemon products; namely, citric acid, citrate of lime, lemon oil, and candied lemon peel. The flavor of the fruit is due to the essential oil, the well known lemon oil, which is contained in distinct cells in the exterior rind and may therefore be obtained by simple expression of the peel. There are several processes actually used to separate the oil. In the so-called two piece and three piece sponge methods the peel is usually dipped in water, drained and then flattened and pressed against a sponge to which the exterior of the rind is applied. This operation bursts the oil cells and the sponge absorbs the oil. The daily output of oil per operator using these methods is about two pounds. The oil is obtained also by perforating the oil cells with the points of copper tacks in a saucer-shaped vessel in which the whole fruit is rotated. These hand processes are inapplicable to the United States because of the high price of labor and consequently, hydraulic presses or a method involving distillation are employed. Lemon oil is defined as the volatile oil obtained by expression or alcoholic solution from the fresh peel of the lemon (*Citrus limonum* L.); it has an optical rotation (2.5 deg. C.) of not less than +60 deg. in a 100-millimeter tube, and contains not less than four per cent (4%) by weight of citral. It is a complex mixture containing over ninety per cent (90%) of hydrocarbons, chiefly the terpene d-limonene. The aroma of the oil is due almost entirely to the presence of oxygenated constituents of which aldehydes constitute from four to seven per cent (4-7%) of the oil. These aldehydes consist of citral, citronellal, nonyl and decyl aldehydes and other members of the aliphatic group. Other important constituents from the standpoint of aroma are the esters, linalyl and geranyl acetates. Terpeneless oil of lemon is oil of lemon from which all or nearly all of the terpenes have been removed. It is produced by distilling off most of the terpenes of either the pressed or distilled oils, generally in vacuum. Lemon flavored products, pies, cakes, bottled sodas, confectionary, etc., are highly esteemed and enormous quantities of the oil are used in their manufacture. It is believed that nearly 70,000 pounds of lemon oil are produced annually in the United States alone. Lemon oil, terpeneless and sesquiterpeneless lemon oil, lemon extract, and emulsions of lemon oil, are all familiar articles of commerce. Imitation lemon flavors consist chiefly of solutions or emulsions of citral obtained from lemon grass oil described below. Lemon oil has been found adulterated with turpentine, terpenes obtained as a by-product in the manufacture of terpeneless oils of lemon and of orange, and with citral obtained from lemon grass oil.

57. **Lemon grass oil:** Lemon grass is a perennial tufted grass with long coarse leaves. It is cultivated chiefly

in the Travancore Province and Madras Presidency of India and the Island of Ceylon. The U. S. Department of Agriculture has cultivated the grass in central Florida and has experimented with 13 varieties secured from eight different parts of the world. It seems possible to produce lemon grass oil commercially in the United States, in those localities which possess the proper climatic requirements. Lemon grass is cultivated for the essential oil, lemon grass oil, obtained by distilling the grass tops, which are cut and tied in bundles for this purpose. Variable yields of the oil are reported varying from a few tenths of a per cent to two per cent (2%) or more based on the green weight of material. The value of the oil depends upon its high content of citral, which varies from about sixty-eight to eighty-five per cent (68-85%). Citral is an aldehyde, and is obtained chiefly from lemon grass oil. It has a lemon-like odor which, however, is coarser than the odor of lemon oil and is widely used in the manufacture of imitation lemon flavors and in the manufacture of ionons, and imitation violet perfume. Lemon grass oil is used to flavor soap. Adulterations of lemon grass oil with petroleum, coconut oil, acetone, and citronella oil have been reported.

58. Limes, oil of: The lime tree grows in the same regions as the orange and is cultivated especially in the West Indies, Italy and Florida. It may be mentioned that lime juice, which is even sourer than lemon juice, is a highly valued ingredient of some ginger ales. However, we are more particularly interested at this time in the essential oil, of which there are three commercial varieties, the hand pressed Italian oil, and the distilled and hand pressed West Indian oils. The essential oil is contained in cells in the rind and in this respect resembles oils of lemon and orange. The distilled oil which is obtained as a by-product by distillation during the concentration of lime juice contains from one to two per cent (1-2%) of aldehydes including citral. Hand pressed white West Indian limes oil contains six to nine per cent (6-9%) of citral. Lemon oil and terpenes are reported as adulterants of limes oil. This desirable essential oil is used to flavor hard candies and other confectionary and is an ingredient of beverage flavors, including ginger ale.

59. Licorice (glycyrrhiza): The licorice plant is a perennial herb, the dried rhizome and roots of which are known in commerce as Spanish, Russian, and Asiatic licorices. Millions of pounds of licorice root are exported to the United States from Turkey and Russia. The plant is cultivated also in Spain, Italy, Greece, China, Turkistan, and Persia, and can be grown in the United States. An important constituent of licorice root is glycyrrhizin, a sweet substance which gelatinizes when a concentrated solution of it in boiling water is cooled. Glycyrrhizin forms a compound with ammonia, and in the manufacture of the fluid extract, ammonia water is employed. The fluid extract is used as a vehicle in medicinal preparations and is an ingredient of some beverage flavors.

60. Lovage: Lovage is a perennial herb extensively cultivated in the

South of Europe for its aromatic roots and fruit. An essential oil is obtained by distilling the roots, the yield being under one per cent (1%). The fresh herb and the fruit also contain an essential oil. Oil of lovage has an odor of angelica and is an ingredient of some imitation maple flavors and beverage flavors. The constituents of the oil have not been identified with the exception of terpineol, a terpene alcohol.

61. Mace and Nutmeg: The nutmeg tree is from 30 to 50 feet high and is cultivated extensively in the Banda Isles, in Java, Penang, Bourbon, Zanzibar, Singapore, and elsewhere in the tropics. Trees over 70 years old have been known to give good crops. The fruit consists of (1) an outer fleshy part, (2) the arillus, which after being detached and dried is mace, (3) a shell, and (4) a kernel or seed which after drying is the nutmeg of commerce. Mace should contain not less than twenty per cent (20%) nor more than thirty per cent (30%) of non-volatile ether extract, not more than ten per cent (10%) of crude fiber, not more than three per cent (3%) of total ash, nor more than five-tenths per cent (0.5%) of ash insoluble in hydrochloric acid. Mace is the dried arillus of *Myristica fragrans* Noutt while macassar papua mace is the dried arillus of *Myristica argentea* Warb. Nutmeg should contain not less than twenty-five per cent (25%) of non-volatile ether extract, not more than ten per cent (10%) of crude fiber, not more than five per cent (5%) of total ash, nor more than five-tenths per cent (0.5%) of ash insoluble in hydrochloric acid. Both mace and nutmegs yield essential oils which are practically identical in composition. They consist of about eighty per cent (80%) of pinene and camphens, eight per cent (8%) dipentene, alcohols about six per cent (6%), safrol six-tenths per cent (0.6%), myristicin about four per cent (4%), eugenol and isoeugenol two-tenths per cent (0.2%), and traces of other constituents. The yield of oil from nutmegs is from six (6) to fifteen per cent (6-15%). The oils of preparations made from them are used in compounding beverage and other flavors. Nutmeg extract should contain not less than two per cent (2%) by volume of oil of nutmeg.

62. Marjoram: Marjoram or sweet marjoram is a small bushy herb about 1 to 1½ feet in height, which is cultivated in many countries for culinary purposes. The essential oil which is distilled in Spain from the fresh herb, has a pleasant odor and a warm aromatic, slightly bitter taste. The yield of oil is from three-tenths to four-tenths per cent (0.3 to 0.4%). Common adulterants of marjoram are the leaves of cistus, coriaria and althaea.

(To be continued)

Advised to Keep Record of Alcohol Used Commercially

That it will be to the best interests of manufacturers using alcohol commercially to keep a laboratory record is the opinion of Robert E. Heekin, president of the Flavoring Extracts Manufacturers' Association of the Uni-

ted States, and in a letter to his organization he requests the keeping of a laboratory record of every ounce of alcohol used commercially. Such a course, it is pointed out, would satisfy all prohibition inspectors and be a protection for the manufacturer.

Advantages of Bottling and Packaging Machinery

Speaking before the convention of the United Medicine Manufacturers of America at the William Penn Hotel, Pittsburgh, C. M. Schofield of the U. S. Bottlers Machinery Company, Chicago, urged the increased use of bottling and packaging machinery as a direct means of reducing costs and increasing production. "There are two elements that dictate improvement in bottled and packaged goods of every character," he said. "First, the natural ambition to put out a better quality article in a more attractive, safer and more conveniently handled package, produced under the most sanitary and economical methods and marketed with all the enthusiastic ingenuity and success, rightfully born of these perfections; and second, the necessity of meeting or beating your competition in any of the above divisions."

Mr. Schofield pointed out that many manufacturers are inclined to drift along without installing modern packaging or bottling machinery because they have not investigated its advantages. Enumerating the objects gained by installation of properly designed bottling and packaging machinery, he said: "First, it will reduce the cost per package, by cutting down the number of employees needed to make the same output; it will save loss of materials through wastage in methods or spoilage in delay; it will save costly floor space that is now wasted; it will attract more intelligent and more productive labor through improved working conditions and more attractive surroundings.

"Second, it will increase sales results by improving the quality and the appearance of goods and packages; it will stimulate the selling power of an organization through greater pride in the goods and their results.

"Third, it will make a continuous daily production more secure by transferring most of the responsibility of both the quality and regularity of the output from human to mechanical hands; and it will give the executives more freedom from factory drudgery and more time for the essential problems connected with expansion and progress."

The real aim of bottling and packaging machinery, said Mr. Schofield, in conclusion, its sole excuse for existence and acceptance is the delivery of "more output with less labor," and it is being put into more and more varieties of service, just in proportion as it makes good on this program.

Formulating Official Food Standards

(Continued from page 10)

vited all who are interested in order that they may submit criticisms, suggestions and arguments. The information adduced at such a hearing is summarized and digested and combined with accumulated data, all of which are considered by the full committee at a subsequent meeting, when it is decided what official standard shall be recommended for the product under consideration.

The Principles Upon Which Standards are Based

The general considerations which have guided the joint committee in preparing definitions and standards for foods are the following:

"1. The definitions are framed so as to include such facts relating to material, quality, origin and mode of preparation as are essential, in order to distinguish the food in question. These definitions may or may not be accompanied by specifications of limits of physical quality and chemical composition characteristic of the food defined.

"Foods vary in composition with differences in season and soil, and because of variations in manufacturing operations, and they may be associated with small amounts of foreign substances owing to imperfect conditions of production. The specifications as to limits of physical quality and chemical composition are so drawn as to provide for such variations as shall be commonly accepted as reasonable.

"2. The definitions are so framed as to exclude from the articles defined, substances not included in the definitions.

"3. A term defined in any of the several schedules has the same meaning in what ever schedule it may be used.

"4. The names of food products herein defined preferably agree with the existing American usage known to the consumer."

It should be set forth as a fundamental principle governing the action of the committee that it is neither the intention, nor is it to be considered within the province of the committee, to create ideals and to formulate standards. Nor shall the committee fix such rigid limits as to hamper or delay improvements in manufacture; rather shall it seek to define or fix those characteristics or qualities of a product which a consumer may reasonably expect, when he purchases an article of food. The committee may define those trade practices which have resulted in creating a commodity, the characteristics or qualities of which have become by usage well known and publicly accepted. For example, after careful investigation the committee formulated a definition for cream as follows:

"1. Sweet cream, is that portion of milk, rich in milk fat, which rises to

the surface of milk on standing, or it may be separated from it by centrifugal force. It is fresh and clean. It contains not less than eighteen per cent (18.0%) of milk fat and not more than two-tenths per cent (0.2%) of acid-reacting substances, calculated in terms of lactic acid.

2. Whipping cream is cream which contains not less than thirty per cent (30.0%) of milk fat.

3. Homogenized cream is cream that has been mechanically treated in such a manner as to alter its physical properties, with particular reference to the conditions and appearance of the fat globules.

"4. Evaporated cream, clotted cream, is cream from which a considerable portion of water has been evaporated." or, as another example:

"Lemon extract is the flavoring extract prepared from oil of lemon, or from lemon peel, or both, and contains not less than five per cent (5%) by volume of oil of lemon."

Significance of the Term "Standard"

In considering these and similar standards, however, it should be borne in mind that the term "standard" is a use of the word in a restricted sense. As here employed it does not, as some have mistakenly supposed, convey the impression of a mark of excellence. Nor does it necessarily indicate even average composition or quality. The term is used rather to define minimum limits of desirable, or maximum limits of undesirable qualities, constituents or characteristics, above or below which a product must not be, in order to keep within the legal requirements of food laws. I have always considered the use of the term "standard" in this connection as unfortunate and personally would much prefer some such term as "designated legal limit."

Standards Already Adopted

The formulation of food definitions and standards is necessarily a slow process. In order to adopt fair and reasonable standards all available information bearing upon the subject is collected and digested. Varying points of view and conflicting interests are harmonized. Food officials, manufacturers, producers, distributors and consumers are given an opportunity to present their views and to criticize the proposed definitions and standards. Frequently importuned to promulgate quickly standards for products under consideration, the Committee believes that the nature of the work is such that it is better to move slowly, rather than to arrive hastily at conclusions which may have to be changed. The Committee is not opposed to making changes when changing conditions warrant such action, but it desires to avoid hasty action which may work hardship or injustice to some of the many interests involved.

Definitions and standards for many

products have already been published. These include under animal products, meats, manufactured meats, meat extracts, meat peptones and lard. Standards have also been determined for milk, for cream, for butter, for cheese, ice creams and miscellaneous milk products also.

Under vegetable products, definitions and standards have been published for grains and meats, for alimentary paste, for various fruit and fruit products, including jams, jellies and preserves, for dried and fresh vegetables and for some canned vegetables, for pickles, sauerkraut and catsup. Likewise, standards have been determined for various carbohydrate products, including sirups, glucose products, candy and honey. Under condiments a large number of spices have been defined; in fact, definitions for fifty different spices have been completed. The Joint Committee has given a great deal of attention to flavoring extracts which constitute one of the most difficult groups of products to standardize. Definitions for as many as twenty-four different flavoring extracts have been completed. Attention has also been given to edible vegetable oils and fats, to tea, coffee and cocoa products, and to some other beverages, including soda water and soda water flavors. Standards for different kinds of vinegar, for salt and for baking powders have been published.

All standards so far published may be found in United States Department of Agriculture Circular 136, entitled "Standards of Purity for Food Products" and in Food Inspection Decisions numbered 181 and 182.

Advantages of Food Standards

As previously noted, the increasing tendency to put food in package form makes more imperative the need for having foods defined and standardized. So long as foods were sold in bulk and bought largely upon appearance, the names under which they were sold had less significance, although there is no justification for misleading names under any conditions. However, since the purchaser cannot judge the qualities of foods by their appearance when they are in packages, it is necessary for fair trading that products be packaged under names which will carry definite meanings to the trade and to consumers. In other words, packaging goods permits the actual vendor to transfer a large share of responsibility for quality claimed or implied to the producer, frequently a distant, and to the purchaser, a rather intangible personality.

Definite food standards are also of great value to the manufacturer of foods. The value of standards in manufacturing processes is too well established to need elaboration. Every manufacturer must adopt some standard for his product in order that he may work towards a definite goal. It obviously facilitates fair trading and fair competition among manufacturers if they have a uniform official standard below which none may fall.

Summary

The food standards as adopted by the Joint Committee on Definitions and Standards are practical and not ideal standards. They represent, in so far as the Committee is able to determine, what the consumer expects to get under a given name. The consumer expects to get under a name the product that has been put out under that name by good commercial

practice. A standard, therefore, represents the product that results from good but not necessarily the best commercial practice. The chief function of the Joint Committee is to determine what is the composition of the product that results from good commercial practice.

Official standards facilitate trade in foods just as standard grades in grains facilitate trade in grain, in that they

permit both buyer and seller to know what may be expected under specific names. They aid in obtaining credit and in making sales in distant markets. They are in every way an advantage to those engaged in the industry. Such standards, properly arrived at, aid manufacturers of food, distributors of food and consumers of food, as well as courts of justice and food officials.

Food Standards Recommended by the Joint Committee

THE Joint Committee on Definitions and Standards has recommended the adoption of the following standards on condensed milk, evaporated milk, concentrated milk, butter, renovated butter, cacao products, ginger ale flavor and ginger ale, as stated on page 9 of this issue:

Condensed Milk, Evaporated Milk, Concentrated Milk

Condensed milk, evaporated milk, concentrated milk, is the product resulting from the evaporation of a considerable portion of the water from milk, or from milk with adjustment, if necessary, of the ratio of fat to non-fat solids by the addition or by the abstraction of cream. It contains, all tolerances being allowed for, not less than seven and eight-tenths per cent (7.8%) of milk fat, nor less than twenty-five and five-tenths per cent (25.5%) of total milk solids; provided, however, that the sum of the percentages of milk fat and total milk solids be not less than thirty-three and seven-tenths (33.7%).

Butter

Butter is the clean, sound product made by gathering in any manner the fat of fresh or ripened milk or cream into a mass, which also includes a small portion of the other natural milk constituents, with or without salt, and contains, all tolerances provided for, less than sixteen per cent (16.0%) of water, and not less than eighty per cent (80.0%) of milk fat. By Acts of Congress, approved August 2, 1886, and May 9, 1902, butter may also contain added coloring matter.

Renovated Butter

Renovated butter, process butter, is the clean, sound product made in semblance of butter from melted, clarified or refined butter-fat without the addition or use of any substance other than water, milk, cream, or salt, and contains, all tolerances provided for, less than sixteen per cent (16.0%) of water, and not less than eighty per cent (80.0%) of milk fat.

Ginger Ale Flavor

Ginger ale flavor, ginger ale concentrate, is the flavoring product in which ginger is the essential constituent, with or without other aromatic and pungent ingredients, citrus oils, and fruit juices.

Ginger Ale

Ginger ale is the carbonated beverage prepared from Ginger Ale Flavor, sugar (sucrose) syrup, harmless organic acid, potable water and caramel color.

c. Cacao Products

1. Cacao beans, cocoa beans, are the seeds of trees belonging to the Genus *Theobroma*, especially those of *Theobroma cacao* L., and closely related species.

2. Cacao nibs, cocoa nibs, "cracked cocoa," are roasted, broken cacao beans freed from germs and from shell or husk.

3. Chocolate, plain chocolate, bitter chocolate, chocolate liquor, chocolate paste, bitter chocolate coating (exclusive of alkalized products) is the solid or plastic mass obtained by grinding cacao nibs and contains not less than fifty per cent (50%) of cacao fat and, on the moisture- and fat-free basis, not more than eight and five-tenths per cent (8.5%) of total ash, not more than four-tenths per cent (0.4%) of ash insoluble in hydrochloric acid and not more than seven per cent (7%) of crude fiber.

4. Sweet chocolate, sweet chocolate coating, is chocolate mixed with sugar (sucrose), with or without the addition of cocoa butter, spices, or other flavoring materials, and contains, on the moisture-, sugar- and fat-free basis, no higher percentage of total ash, ash insoluble in hydrochloric acid, or crude fiber, respectively, than is found in chocolate.

5. Cocoa, powdered cocoa, is chocolate deprived of a portion of its fat and finely pulverized, and contains, on the moisture- and fat-free basis, no greater percentage of total ash, ash insoluble in hydrochloric acid, or crude fibre, respectively, than is found in chocolate.

6. "Breakfast cocoa" is cocoa which contains not less than twenty-five per cent (25.0%) of cacao fat.

7. Sweet cocoa, sweetened cocoa, is cocoa mixed with sugar (sucrose), and contains not more than sixty-five per cent (65.0%) sugar in the finished product, and, on the moisture-, sugar- and fat-free basis, no greater percentage of total ash, ash insoluble in hydrochloric acid, or crude fibre, respectively, than is found in chocolate.

8. Milk chocolate, sweet milk chocolate, is chocolate or sweet chocolate to which whole milk or its equivalent in milk products has been added, and which contains not less than twelve per cent (12.0%) of whole milk solids in the finished product.

c. Edible Vegetable Oils and Fats

2. Cacao butter, cocoa butter, is the edible fat obtained from sound cacao seeds (*Theobroma cacao* L., or other closely related species) either before or after roasting.

Warns Against Canning and Preserving Compounds

Agents of the Bureau of Foods of the Pennsylvania Department of Agriculture have discovered wholesale attempts to victimize the housewives of the State through the sale of so-called canning and preserving compounds.

A plot was recently uncovered in Philadelphia through which a smooth swindler was selling water and a trace of sugar for sixty cents a bottle containing less than four ounces. The swindler was arrested and has since jumped his bail bond.

Director James Foust of the Bureau of Foods urges housewives to refuse to purchase these so-called canning compounds from agents that go from door to door.

Use of Corn Sugar in Soda Fountain Flavors

Asked by Thomas J. Hickey, secretary, National Manufacturers of Soda Water Flavors, as to the Government's attitude toward the use of corn sugar in soda fountain flavors, W. G. Campbell, acting chief, Bureau of Chemistry, Washington, replied that there is no objection to the use of pure corn sugar in flavoring sirups and other food; in fact, during the sugar shortage the Bureau encouraged the use of corn sugar and corn sirup, especially in bottled sodas and fountain beverages. However, it has always been customary to use cane sugar in products of this nature; therefore, the Bureau is of the opinion that when corn sugar or corn sirup is used to sweeten food products which ordinarily are sweetened with sugar the presence of the corn sugar or corn sirup should be declared in a plain and conspicuous manner on the label.

Prosecutions in Pennsylvania for Use of Sulphur Dioxide

Recently it has been necessary for the Bureau of Foods of the Pennsylvania Department of Agriculture to prosecute 26 retailers for violations of the law governing the sale of dried fruits that have been treated with sulphur dioxide. According to the pure food laws of Pennsylvania, the use of sulphur dioxide in all food stuffs and drinks, except dried fruits and molasses, is prohibited. Dried fruits and molasses treated with the chemical must be sold to the consumer only in packages in which the fact has been set forth. "Practically all the fruits dried in the West and shipped into Pennsylvania," says the Bureau of Foods, "are treated with sulphur dioxide and the containers so labeled."

Dehydrated Pumpkin Flour

(Continued from page 8)

cost of milling and packing the flour or overhead costs or the separate operation of seed recovery. Assuming an average gross shrinkage of 13 to 1 and a cost of \$6 per ton for fresh pumpkin, the cost of the dehydrated pumpkin becomes in Plant B-7, 15 cents, and in Plant C-11, 7 cents per pound. To this must be added the cost of milling, containers and over-head, figures of which are not available for publication.

The pumpkin flour is an excellent product and will keep indefinitely. Pies made with it compare favorably with those made from canned pumpkin. It is very convenient to use, sufficient flour being removed from the can to make the desired number of pies, simmered in water for a few minutes and mixed with the other ingredients for the pie filling. There is no preparation, no waste and no loss of time. Besides its main use in pie, the Caladero Products Company has issued a recipe book describing several other preparations made from pumpkin flour, such as bread, muffins, cakes, waffles, puddings, etc.

Although introduced throughout the United States, most of the sales energy expended in introducing this product has been expended in the vicinity of Chicago, doubtless because some 55 per cent of the population of the United States lives within 500 miles of



Placing a carload of sliced pumpkin in the dehydrating tunnels

Chicago. Considerable quantities have been sold but the demand so far has not disposed of the supply.

The introduction of any new product which takes the place of or competes with an already established product is always attended with difficulties. Housewives and bakers have been using canned pumpkin for years and are naturally loathe to change to pumpkin flour unless convinced that it is to their advantage. So far there has been no saving in using the flour since the prices asked are about the same as an equivalent quantity of canned

pumpkins. For instance, the 8 oz. canister of flour retailing for 50 cents will make 9 to 10 pies at a cost for pumpkin of about five cents per pie while a No. 2½ can retailing at 20 cents will make 4 to 5 pies at a cost of four to five cents per pie. For bakers the flour sells at 40 cents per pound, equivalent to two cents per pie, while a No. 10 can selling for 35 cents will make about 17 pies at a cost of two cents each for pumpkin.

The introductory prices of most new products are considerably higher than obtain when increased production, greater efficiency of manufacture and competition all unite to establish the lowest price which will still leave the manufacturer a satisfactory profit. Pumpkin flour is inherently an excellent and economical product and the great reduction in volume and weight over fresh or canned pumpkin should enable it to be packed and shipped at prices which will undersell canned pumpkin. When this occurs, the demand for pumpkin flour will probably grow even more rapidly than it has already.

Cost of Dehydrating Pumpkin Per Fresh Ton			
	Pl. A	Pl. B	Pl. C
Capacity per 24 hrs.	32 tons	32 tons	24 tons
Labor			
Preparat'n for drying	\$1.55	\$1.44	\$2.08
Loading and unloading			
trays and drying....	1.87	1.46	5.65
Superintendence .....	.52	.48	.66
Fuel	2.53	1.06	1.82
Power .....	.51	.56	.84
Total Oper. Cost.....	\$6.98	\$5.00	\$11.05



A tray of sliced pumpkin before and after dehydrating; green weight, 25 pounds; dry weight, 2 pounds

Rumanians Eager for American Canned Fruits

The people of Rumania are beginning to fancy the choice American canned peaches and other fruits which are now being sold in practically every country of the world, along with our canned salmon, sardines, and milk. Trade Commissioner Van Norman, in a report to the Department of Commerce, comments upon the expanding market in Rumania for American canned goods, in spite of the effort of

native dealers to "boost" home products. While the preference of the Rumanian is for American fruits, he seems to relish the French canned vegetables, while English marmalades are sold in much greater quantities than the American products.

It Is Hard Work to Raise Cocoa

Cocoa, or Cacao, as it is called before being ground, is not one of those tropical products which we often read about as growing easily, without care,

and furnishing an ever-abundant crop only dependent upon the ambition of the native to pick it. According to Vice Consul S. J. Fletcher of La Guaira, Venezuela, it is a product which requires tender nursing from the time the seed is planted in a nursery until ten years after when the tree reaches its full production.

Well kept plantations produce some cacao the entire year, with two periods of heavy production and the average tree produces about one and one-half pounds per annum.

NEWS OF THE FOOD TRADES

Tuna Fish Packers on Coast Merge

Four Companies Consolidate To Form a New \$5,000,000 Corporation

After an unusually critical period the tuna industry in Southern California is in a fair way of becoming stabilized. A consolidation, which will eventually bring this about, has been achieved. The industry, like many others, suffered from much unsound inflation and over-production during the war. When the high tide of war-time profits receded and the pendulum suddenly swung from a producers' to a consumers' market, most of the thirty odd tuna canneries scattered along the water front of Los Angeles and San Diego harbors found themselves facing some very serious problems. Many shut their doors never to open them again. Others struggled along with large stocks of packed goods, for which no immediate market could be found.

When the market broke suddenly last year many of the large eastern distributors were obliged to cancel their orders for tuna, having invested so heavily in other commodities that they could not meet their own fast accumulating obligations.

As a result things with the tuna packers rapidly drifted from bad to worse. Statements began to show serious losses instead of the all too encouraging profits of previous years.

Vicious economic practices gained headway. Price cutting became the rule. Fishermen abrogated contracts with the canneries often selling their catch, or portions of it to the highest bidder. Even brokers sold their tuna stocks at prices ridiculously below the accepted market rate.

Everyone connected with the industry, including the banks, realized that, with few exceptions, the tuna packers were facing a grave crisis.

Consolidation of Leading Interests

Before the situation had become so serious, however, consolidation of some of the larger interests had been considered. Actually, a minor consolidation took place which resulted in the formation of the International Packing Corporation.

But it soon became evident that something far more sweeping was needed. Meetings were held. Some form of united action was decided upon. The legality and illegality of various kinds of "gentlemen's agreements" and the practicability of marketing organizations were discussed. Unfortunately few of these plans ever went beyond the discursive stage. Apparently no one was then able to subordinate his own individuality to the good of the whole. Even the local canners' Association was finally dissolved.

Early in 1922 a movement was started with some outside help, to merge the strongest organizations including the four who finally consummated their agreement for consolidation on June first. These are the former Van Camp Sea Food Company, White Star Canning Company, International Packing Corporation and Nielsen & Kittle Canning Co., Ltd. It is these con-



Robert H. Brush, Los Angeles advertising man, who negotiated consolidation of tuna fish packers

cerns that have subscribed for the capital stock of the new company which embraces assets totalling over \$5,000,000.

From the outset, however, many obstacles arose which prevented an immediate consolidation of these different interests. That these obstacles were gradually overcome is due largely to the efforts of Robert H. Brush, formerly of New York, and now representing the Smith and Ferris Advertising Agency of Los Angeles.

Under Management of Frank Van Camp

Direction of the new concern will be in the hands of eleven directors, two of whom will be from each of the four parent companies while the general management is vested in Frank Van Camp, who has long been identified with the fish packing interests of the California coast. Other men who assume active participation in the new company are B. Houssels; R. D. Steele, and A. J. Cohn all of the International Packing Corporation; C. O. Nielsen of Nielsen & Kittle Canning Co., Ltd., W. J. King of the White Star Canning Company, and Gilbert Van Camp of the Van Camp Sea Food Co.

The merged companies operate four plants at Los Angeles Harbor and two in San Diego, and by purchase will acquire several others as well. The plants which are absorbed by this merger are unquestionably among the largest, best equipped, and most sanitary fish packing plants in the world.

This new company with its associated packers will control a large portion of the output of canned tuna and sardines in Southern California, and it is only in waters off the coast of Southern California that tuna are caught in commercial quantities. The catches in Japan and on the Mediterranean Sea are so small that the world is dependent upon California to a very large extent for tuna.

Oppose Modification of "Consent Decree"

Morris & Company, Chicago Packers, Say They Have No Desire to Re-enter Grocery Field

Morris & Company, the Chicago packers, through their general counsel, M. W. Borders, have filed with the Supreme Court of the District of Columbia a statement in which it is said that Morris & Company have complied with the so-called packers' consent decree and are opposed to any modification thereof. Mr. Borders stated that Morris & Company have disposed of all of their prohibited holdings which action the court has approved, together with their wholesale groceries and "do not desire to re-enter the grocery field."

"As this is a consent decree" the statement points out, "it can only be modified by the consent of all of the parties thereto, and as two different interests are seeking to intervene in this case, one to modify the decree or set it aside altogether as invalid, and the other to sustain the decree, it is only fair to this honorable court, to these interveners and all parties interested that the position of these defendants should be made plain."

It is pointed out that the defendants consented to the decree and gave up certain business not because of guilt, but that "the American people may be assured that there is not the remotest possibility of a food monopoly by the packers." In conclusion, Morris & Company state that they disposed of all their wholesale groceries in compliance with the decree and at a loss of more than \$1,000,000, thinking that particular question was definitely settled for all time. They state most emphatically that they do not desire to re-enter the grocery field and that they have absolutely no connection with, or interest in, any intervening petition filed in the case, either directly or indirectly.

Food Exports Show a Gain of \$3,500,000 in May

Exports of principal food products from the United States in May amounted to about \$3,500,000 more than in the previous month, but were still about \$24,000,000 under May, 1921. The total value in May was \$53,326,972, compared with \$77,685,760 in May of last year. The value of meats increased \$766,439 and canned vegetables and fruits, \$72,999 while dairy products showed a decline in value of \$414,911.

Although margarin from animal fats increased from 121,000 pounds exported in April to 177,000 pounds in May; margarin of vegetable fats, showed a decrease from 10,000 pounds to 8,000 pounds. Lard compounds containing animal fats registered a slight decrease, falling from 1,488,000 pounds in April to 1,085,000 pounds in May, while lard compounds containing vegetable fats showed a marked decline from 3,341,000 pounds in April to only 900,000 pounds in May. Oleo oils jumped from 8,895,000 pounds in April to 13,026,000 in May, but cottonseed oil declined from 4,134,000 to 2,853,000 pounds.

Glass Container Manufacturers Appeal for Readjustment of Railroad Tariffs

Claim Freight Rates Charged Food Products Packed in Glass Are Excessive and Unreasonable

In an effort to have the freight rates on products packed in glass adjusted on a more reasonable basis, both the Glass Containers Association of America and the National Food Packers' Traffic Association have filed with the Interstate Commerce Commission complaints in suits for rate

adjustment against the Baltimore & Ohio Railroad Company. The complainants in the National Food Packers' Traffic Association include the H. J. Heinz Company, Gorton-Pew Fisheries Company, Alart & McGuire Company (Charles F. Ross, re-

ceiver), and the American Spice Trade Association.

The Glass Container Association alleges in its complaint that the rates resulting from the present classification and ratings on less than carload shipments of foods in glass in packages, applicable under the official classification, between points in official classification territory are unjust and unreasonable and therefore in violation of Section 1 of the Act to Regulate Commerce.

The association points out in its complaint that while it is made up principally of manufacturers of containers and does not claim ownership or control of the container when filled with food products and in process of shipment between the packers and their customers, yet the glass container, is in keen competition with other types of containers, and that by reason of the rate limitations upon the use of glass containers by the packers, corresponding limitations are placed upon the manufacturers of glass containers in their sales.

The National Food Packers' Traffic Association states that its membership ships over the lines of the Baltimore & Ohio Railroad Company in less than carload quantities as well as in earload lots packed in glass containers in wooden and fibreboard boxes and in barrels and other containers complying with all requirements of the railroad.

Both complainants after stating the alleged violations by the railroad refer to paragraph 4 of their complaints in which is set forth in a table of products the present rating stated by them to be unreasonable and the rating which they state to be reasonable.

In the accompanying table, the first column shows the page and the second the item number of Consolidated Classification No. 2, which gives the existing rating. In column 3 the commodities involved in the complaint are listed and the fourth and fifth columns show the existing rate and the rate believed to be just.

To Spend \$500,000 in Promoting Meat Consumption

Raising of a fund of \$500,000 for an advertising campaign to restore the normal consumption of meats was approved by the National Live Stock Exchange at its annual convention in Kansas City. The plan was submitted by the National Live Stock and Meat Board, Chicago. The fund will be raised by a tax of 5 cents a car at central markets on each carlot of meat animals sold, paid by the producer. There will also be a 5 cent tax paid by the packers, bringing the total amount raised on each carlot up to 10 cents.

The campaign will advertise meats as a wholesome food, nutritious and health promoting. At the convention of the National Live Stock Exchange, it was brought out that meatless days during the war, substitutes for meat, which are advertised rationally, and the activity of the dairy interests in promoting milk consumption has caused a cessation in meat consumption to a point below normal.

Rumania Shipping Walnuts in Large Quantities to America

Exports of walnuts by Rumania to the United States in 1921 totaled 3,806,600 pounds of unshelled and 49,500 pounds of shelled nuts. During January and February of this year declarations of shipments of walnuts to the United States totaled 1,811,600 pounds, or nearly half the year's total in 1921.

TABLE PRESENTED IN BOTH COMPLAINTS

CONSOLIDATED FREIGHT CLASSIFICATION No. 2, OFFICIAL CLASSIFICATION No. 46, AGENT F. W. SMITH'S I. C. C. O. C. No. 46

Page	Item	Commodity Description	Present rating alleged to be unreasonable in violation of Section 1	Rating alleged to be reason- able
111	1	BUTTER:		
		Peanut (Peanut Paste):		
		In glass or earthenware packed in barrels or boxes, L. C. L.	2	3
	5	Sugar or Corn Syrup and Sugar combined, flavored or not flavored:		
		In glass or earthenware packed in barrels or boxes, L. C. L.	2	3
169		FISH:		
	1	Other than Fresh:		
	2	Shell Fish, Cooked, Pickled or Preserved, N. O. I. B. N.:		
		In glass or earthenware packed in barrels or boxes, L. C. L.	1	R26
	4	Fish, other than Shell Fish:		
	5	Cooked, Pickled or Preserved, Dried, Dry Salted or Smoked:		
		In glass or earthenware packed in barrels or boxes, L. C. L.	1	R26
177	1	FRUIT, OTHER THAN DRIED, EVAPORATED OR FRESH:		
	2	Canned or Preserved in juice or syrup, or in liquid other than brine or alcoholic liquor; Fruit Butter, Crushed Fruit, Fruit Jam, Fruit Jelly or Fruit Pulp:		
		In glass or earthenware packed in barrels or boxes, L. C. L.	1	R26
177	8	Olives:		
		In glass or earthenware packed in barrels or boxes L. C. L.	1	3
223	3	Honey and sugar mixture (mixtures of strained honey and invert sugar containing not more than 50% by weight of honey):		
		In glass or earthenware packed in barrels or boxes, L. C. L.	1	2
*39	1	HONEY:		
		Comb or strained:		
		In glass or earthenware packed in barrels or boxes, L. C. L.	1	2
236	18	Jams, Jellies or Preserves, Edible, N.O.I.B.N.:		
		In glass or earthenware packed in barrels or boxes, L. C. L.	1	R26
	20	Jelly, Corn Syrup:		
		In glass or earthenware packed in barrels or boxes, L. C. L.	1	R26
289	6	Mince Meat:		
		In glass or earthenware packed in barrels or boxes L. C. L.	1	3
299	12	OILS:		
		Olive:		
		In glass or earthenware packed in barrels or boxes, L. C. L.	1	2
320	28	Pickles, N.O.I.B.N., see Note:		
		In glass or earthenware packed in barrels or boxes L. C. L.	1	3
		Note—Ratings apply on Fruits, Nuts or Vegetables, pickled in brine or vinegar, N.O.I.B.N., but will not apply on Fruits, Nuts or Vegetables in syrup.		
358	14	Sauces, Table, N.O.I.B.N., including Catsup, prepared Horseradish, prepared Mustard, Pepper Sauce or Salad Dressing:		
		In glass or earthenware packed in barrels or boxes L. C. L.	1	3
†59	1	SPICES:		
†59	2	Allspice (Pimento), Capsicum (Cayenne Pepper), Chili Peppers, Cinnamon, Cassia, Cloves, Clove Stems, Nutmegs, Paprika or Pepper:		
†59	3	Ground:		
		In glass or earthenware packed in barrels or boxes, L. C. L.	1	2
†59		Spices, N.O.I.B.N.:		
		Ground:		
		In glass or earthenware packed in barrels or boxes, L. C. L.	1	2
429	19	Vinegar:		
		In glass or earthenware packed in barrels or boxes, L. C. L.	2	3

*Supplement 9 to I. C. C. O. C. No. 46.
†Supplement 13 to I. C. C. O. C. No. 46.

Wholesalers Favor Uniform Food Law

Also Oppose Any Modification of Packers' Consent Decree—Standardization of Packages Advocated

At the sixteenth annual convention of the National Association of Wholesale Grocers, held in Chicago, last month, among the resolutions adopted, gratification was expressed at the apparent growing recognition of the value and legitimacy of trade associations as constructive factors in commercial progress and praising the sympathetic services of Secretary of Commerce Hoover toward a better co-operation between the Government and business.

A resolution was also passed declaring the packers' consent decree "a new Magna Charta" for independent food merchants and a guarantee of protection against monopoly; reaffirming the association's attitude to oppose any modification of said decree and declaring its maintenance as "a solemn covenant between the Government of the United States and the 'Big Five' to enforce the anti-trust law."

The fact that in the past two years about 125,000 legislative measures have been introduced in Congress and the State legislatures was deplored, and the enactment by all the states of a uniform pure food law was advocated. Praise was accorded the Federal Trade Commission for its exhaustive investigation of the meat packing industry, which resulted in the consent decree and the work of the business Bureau of Harvard University and the National Chamber of Commerce was indorsed.

The convention also went on record as favoring a reduction in the number and size of food packages and the standardization of the same; also indorsing the standard flour package bill now pending in Congress. The Federal Trade Commission was commended for its energy in suppressing false labels.

Officers Elected

The following officers and directors were elected for the ensuing year:

President, J. W. Herscher, Charleston, W. Va.

First vice president, B. B. Cushman, Detroit, Mich.

Second vice president, O. J. Moore, Sioux City, Io.

Third vice president, Austin L. Baker, Boston, Mass.

Four vice president, John W. Morey, Denver, Colo.

Fifth vice president, B. D. Crane, Fort Smith, Ark.

Treasurer, Sylvan L. Stix, New York City.

Directors

Alabama—P. H. Earl, Birmingham.

Arizona—E. B. Grider, Globe.

Arkansas—J. T. Jarrell, Little Rock; H. C. Bass, Fort Smith; A. B. Jones, Jonesboro; T. L. Love, Helena.

California—P. C. Drescher, Sacramento; P. T. Cumberson, San Francisco; Victor H. Tuttle, Los Angeles; Melville Klauber, San Diego.

Colorado—L. A. Puffer, Colorado Springs; Thomas A. Duke, Pueblo.

Connecticut—William Tucker, Hartford.

Delaware—William Hannigan, Wilmington.



J. B. Newman, who has long been identified with Wholesale Grocers' Association Work

Florida—Charles H. Moorehouse, Tampa.

Georgia—A. S. Pendleton, Valdosta.

Idaho—William P. McDonald, Pocatello; W. M. Davidson, Boise.

Illinois—Campbell Holton, Bloomington; S. B. Steele, Chicago; R. J. Roulston, Chicago; Alexander Furst, Peoria.

Indiana—Roy L. Davidson, Indianapolis; H. O. Ames, Evansville; F. L. Smock, Fort Wayne; H. Rosenthal, La Porte; W. O. Moore, Indianapolis; Herbert McMahan, Anderson.

Iowa—W. S. Warfield, Jr., Sioux City; R. W. McCreary, Marshalltown; John Blaul, Burlington; William Groneweg, Council Bluffs.

Kansas—Fred H. Smithmeyer, Lawrence; W. W. Watson, Salina; M. J. Horan, Atchison.

Kentucky—H. A. Power, Paris; Edward J. Zinmeister, Louisville.

Louisiana—George P. Thompson, New Orleans; J. A. M. Wilson, New Orleans.

Maine—E. R. Savage, Bangor; A. T. Laughlin, Portland.

Maryland—Stewart Eggerton, Baltimore; W. E. Shepard, Salisbury; T. L. Ruark, Salisbury.

Massachusetts—B. F. Bullard, Boston; J. D. Abercrombie, Greenfield; H. B. Johnson, Worcester; W. C. Adams, Boston.

Michigan—John G. Clark, Bad Axe; Guy W. Rouse, Grand Rapids; E. A. Dibble, Hillsdale.

Minnesota—R. A. Horr, Duluth; M. W. Griggs, St. Paul; Frank Brewer, Albert Lea; C. R. Winslow, Minneapolis.

Mississippi—Tom Lyle, Meriden.

Missouri—Frank Adams, Chillicothe; Carl Schlapp, St. Louis; James A. Roberts, Kansas City; E. B. Farley, Sedalia; J. C. Lester, Kansas City.

Montana—J. A. Lovelace, Bozeman; T. J. McDonough, Billings; Charles E. Youlden, Butte.

Nebraska—C. H. Pickens, Omaha; A. C. Law, Lincoln.

New Hampshire—E. F. Holbrook Keene.

New Jersey—H. C. Blackwell, Trenton.

New Mexico—Charles Ifield, Las Vegas.

New York—E. S. Truesdell, Binghamton; E. F. Brewster, Jr., Rochester; W. F. Eggleston, Oneonta; H. S. Reynolds, Poughkeepsie; E. H. Sayre, New York City; P. C. Stiab, New York City.

North Carolina—G. R. Hales, Rocky Mount.

North Dakota—H. J. Duemeland, Bismark; C. O. Follett, Fargo.

Ohio—George A. Jones, Cleveland; H. J. Easterman, Cincinnati; W. M. Briggs, Portsmouth; R. E. Hills, Delaware; W. M. Campbell, Washington Court House; J. W. Van Meter, Columbus; Charles Filebeck, Toledo; W. S. Meredith, Springfield; J. H. Mosel, Steubenville.

Oklahoma—H. E. Alton, Enid.

Oregon—San C. Kurr, Portland; F. A. Spencer, Portland.

Pennsylvania—Fred Ewart, Pittsburgh; J. R. Voscamp, Pittsburgh; D. C. Shaw, Pittsburgh; D. H. Crocker, Wilkes-Barre; James Hewitt, Philadelphia; F. B. Reeves, Jr., Philadelphia; J. F. Schneider, Mt. Carmel; George Patterson, Carbondale; Robert L. Montgomery, Philadelphia.

Rhode Island—George A. Midwood, Providence.

South Carolina—George S. Beggs, Spartanburg.

South Dakota—Amos E. Ayres, Sioux Falls; L. E. Allbright, Pierre.

Tennessee—S. R. Hazen, Knoxville.

Texas—James A. Dick, El Paso; C. J. Schenecker, Fort Worth.

Utah—E. Toronto, Salt Lake City; A. H. Woolley, Salt Lake City.

Vermont—F. E. Low, Montpelier; E. T. DeWitt, Brattleboro.

Virginia—Hugh Antrim, Washington.

Washington—J. C. Lange, Seattle; S. S. McClintock, Spokane.

West Virginia—F. W. Udy, Bluefield; H. B. Hagan, Huntington; W. C. McConaughy, Parkersburg; E. E. Wagner, Wheeling.

Wisconsin—W. Hoffman, Milwaukee; Mitchell Johnes, Green Bay.

California Almond Growers Make New Five-Year Agreement

At a meeting of the California Almond Growers Exchange in San Francisco, June 1, the exchange was reorganized on a five-year pooling agreement with the almond growers of California, it was announced at the meeting that 2,500 producers of almonds had signed the five-year agreement to replace the old seasonal agreement between growers and their co-operative. The exchange has been put in a position to make plans for sales and market development.

The almond growers continued the old officers and board of directors in office, with T. C. Tucker as manager, and instructed the manager to open the books for orders for the 1922 crop immediately. The five-year agreement guarantees the trade that the exchange will be in business from year to year and will control at least the present tonnage and possibly increased volume.

Cost of Distributing Food Products

Bread Takes 50 Cents Out of Each Dollar Consumer Pays But Other Foodstuffs Require Less

DISTRIBUTION eats up 50 cents out of each dollar the consumer pays for bread, according to figures compiled by the Joint Commission of Agricultural Inquiry during its investigation of the high cost of living. In a report soon to be submitted to Congress, the commission will show that the farmer receives only 29.6 cents in the local market for the wheat needed to produce one dollar's worth of bread. This statement is based on average figures for 1913, 1916, and 1921. In 1913 the entire production cost was 44 cents, and the distribution cost 56 cents.

"It seems possible that greater efficiency can be developed which will tend to reduce baker's selling cost and overhead and the retail dealer's operating expense," said Representative Sydney Anderson, chairman of the commission. "Our inquiry does not indicate that the manufacturing baker has exacted an undue profit in taking the 5.3 cents from the consumer's dollar for manufacturing bread and distributing it to the retailer."

"It would appear, however, that the retailer's operating expense of 15 cents and the baker's average selling expense of 15.76 cents out of the dollar the consumers pays for bread should be reduced by improvement of method. To some degree, consumers' demand for variety causes duplication of service on the part of the several bakeries making daily deliveries to the same retailers."

"The competitive element between manufacturing bakeries in their efforts to command markets naturally tends to increase the amount of service and the cost of selling. However, competition tends to maintain a high standard of quality and convenience of service."

"In 1913 the producer received an average of 90.1 cents out of the dollar the consumer paid for fresh beef after paying 3.9 cents for transportation, feed and commissions. The packer paid 94.0 cents live cost and 9.7 cents for selling, transportation and packing, making a total of 103.7 cents. He sold fresh beef to the retailer at 86.5 cents and sold byproducts for 18.3 cents, making a total of 104.8 cents, thereby realizing a profit of 1.1 cents. The retailer paid 86.5 cents and had an operating cost of 10.0 cents and a profit of 3.5 cents, equalling the 100 cents which the consumer paid for fresh beef."

"In 1916 the producer received an average of 99.4 cents out of the dollar the consumer paid for fresh beef after paying 4.0 cents for transportation, feed and commissions. The packer paid an average of 103.4 cents live cost and 9.3 cents for selling, transportation and packing, making a total of 111.7 cents. He sold fresh beef to the retailer for 79.6 cents and sold by-products for 29.0 cents, making a total of 108.6 cents and showing a loss of 4.1 cents. The retailer paid 79.6 cents and had an operating expense of 17.5 cents and a profit of 2.9 cents, equalling the 100 cents which the consumer paid for fresh beef."

"In 1921 the producer received an average of 67.7 cents out of the dollar the consumer paid for fresh beef after paying 5.3 cents for transportation, feed and commissions. The packer paid an average of 73.0 cents

live cost and 25.1 cents for selling, transportation and packing, making a total of 98.1 cents. He sold fresh beef to the retailer at 78.8 cents and sold by-products for 10.8 cents making a total of 89.6 cents, thereby realizing a profit of 1.5 cents. The retailer paid 78.8 cents and had an operating cost of 18.5 cents and a profit of 2.7 cents, equalling the 100 cents which the consumer paid for fresh beef."

"The retailer's cost of operation had increased from 10.0 cents in 1913 to 18.5 cents in 1921, and in the same period profits decreased from 3.5 cents to 2.7 cents per dollar of sales."

Wholesaler Urges Prevention of "Unfair Selling Prices"

Recently asked how the large advertiser of brands of food can help the jobber, S. L. Stix, sales manager of Seeman Brothers, wholesale grocers, who have nationally advertised their own brand, "White Rose," replied that it would be "by going the limit that the law allows in preventing the chain stores and mail-order houses from placing unfair prices on the manufacturer's products."

"The manufacturer," said Mr. Stix, "is in direct contact with both of these distributors, and is therefore in a position to refuse to sell. In other words, when manufacturers of an advertised brand recognize chain stores and mail-order houses on a mail-order basis, they ought to ask the co-operation of such distributors in return, so as not to demoralize the retail market. Of course, I do not mean by this that the cash-and-carry or no-service store should be induced to get the same price for an article that a service store gets—proper allowance should be made for the difference in service."

Mr. Stix said that he did not support the price control bill as a solution because it attempts to make distinctions as to who is a wholesaler, who is a retailer and who is a consumer. It is unfair trade, he said, for anyone deliberately to sell goods at a loss except for one reason—to raise cash.

"I believe that the period of deflation which we have been going through is healthy and normal," Mr. Stix said, "but no business like the wholesale grocery business which works, in the ordinary run of things on an average net profit of 2 per cent, can afford an increase of 3 or 4 per cent in expense. That is our present problem. We are taking radical steps to cut expense and increase our tonnage."

Progress Made in Securing Better Butter for Navy

For 20 years the United States Department of Agriculture has aided the Navy Department to secure a high quality of tinned butter, the kind best adapted for use on shipboard and in places far from the sources of supply. In recent years all this butter has been made from pasteurized sweet cream, which not only keeps exceptionally well in storage but stands up for long periods under adverse climatic conditions.

In studying the requirements of butter for this purpose special consideration has

been given to the effect of cream acidity on keeping quality of butter, and to manufacturing methods producing firm body and waxy texture.

In the last few years practically all the butter obtained has scored 95 at the time of packing, and scores made 10 months after being held in cold storage have averaged only about 2 points lower. During 1921 seven creameries supplied 800,000 pounds of butter to the Navy; and the cost of supervision by men selected by the Department of Agriculture was only about one-third of a cent a pound. Scores made each year, beginning with 1911, show a slight but gradual improvement in quality.

Figures on Canadian Food Manufacture Announced

Statistics on capital invested and the value of products in the leading industries of Canada for 1919 show that at that time there was invested in flour and grist mill production \$76,411,423 and the value of the production totaled \$262,786,759. In slaughtering and meat packing there was an investment of \$83,363,791 with an annual value of products of \$233,936,913. Butter and cheese companies showed capital investment of \$21,959,213 with products valued at \$119,316,569. Investment in sugar refining was \$38,725,542, while the value of the product was \$102,630,086. In the production of bread and other bakery products \$22,558,093 was invested and the value of products was \$52,238,131.

Investigation covering the operations of 22 individual plants engaged in the production of baking powder and flavoring extracts showed that there was a total capital investment of \$2,661,424, salaries and wages paid to 669 employees totaled \$590,560 and the total selling value of the products at the works was \$3,963,790. Statistics collected from 77 evaporating, 120 canning and 40 preserving factories showed a total capital investment of \$1,225,485 in evaporating plants, \$10,133,682 invested in canning factories, and \$4,597,529 in preserving factories. The total number of employees engaged in these industries was 5,984 and salaries and wages paid amounted to \$3,184,663. The total value of the products was: Evaporated, \$1,676,317; canned, \$16,013,392; preserved, \$9,042,851.

Sunmaid Raisin Growers to Announce New Prices August 1

Current prices on "Sunmaid" raisins are not to be changed until about August 1, according to Wylie M. Giffen, president of the Sunmaid Raisin Growers, in a statement issued in response to a rumor that the Sunmaid Growers would have a large carryover this season.

"There seems to be much uneasiness in reference to the holdover at the present time" says President Giffen. "We are herewith giving the exact figures. We have on hand 43,440 tons of raisins, which is 12,308 tons less than we had on hand at the same time last year. It is, of course, not desirable that we should have this many raisins on hand at this time of the year as the market will probably not absorb more than 25,000 tons before the new season."

"This means that we will lap over into the new crop with 20,000 tons. Though this is not desirable, it is not alarming and should not cause uneasiness, as 20,000 tons is less than one-half the holdover we had during the formative years of our organization."

Purity

MARGARIN

A Pure and Wholesome Food

Just health-giving, vim-making nut oils, sweet pasteurized milk and a flavor of salt, cleanly made into a product which meets your approval at first taste—that's PURITY NUT. Man has never combined a purer or more wholesome food from Nature's storehouse.

A pound of it sold means a permanent, enthusiastic customer.



THE CAPITAL CITY PRODUCTS CO.

Columbus, Ohio

Makers of COLUMBUS Margarin

E. PRITCHARD

Packer and Manufacturer
of the Finest

"EDDYS"

BRAND

Canned Food, Jellies, Preserves
Plum Pudding, Sauces, Table Delicacies
and

PRIDE OF THE FARM
TOMATO CATSUP

Bridgeton, New Jersey

and

331 Spring Street, New York, N. Y.

Healthful Dishes For The Children

THE problem of feeding children just the right kind of dishes is easily solved with Knox Sparkling Gelatine, which permits not only serving dishes in unusually attractive and varied way, yet its health giving properties are recognized by all Food Authorities—dietitians and physicians the world over.

KNOX

SPARKLING GELATINE

In the home, the diet kitchen and in the domestic science laboratory, Knox Gelatine is used because of its purity, quality and strength. When combined with fresh fruits or fruit juices, its dietetic value is unexcelled.

Delightful Recipes for Children—Free

The Knox Books, "Dainty Desserts" and "Food Economy," contain many recipes for children feeding as well as dainty dishes for desserts, salads, candies, etc. Send for them—enclosing 4 cents to cover postage.

Any domestic science teacher may have sufficient gelatine for her class by writing on school stationery, giving quantity and when needed.

The Charles B. Knox Gelatine Co.

111 Knox Ave.,

Johnstown, New York



↑
Plain for general use. The original unflavored, unsweetened package.



↑
The "Busy Housekeeper's" package. Contains Lemon Flavoring in separate envelope. No Lemons required.

Both packages contain the same Quality and Quantity of Sparkling Gelatine

A Manufacturer's Views on Food Tariffs

Brooks Morgan Says Only a Handful of American Producers Would Benefit While Export Trade Would be Injured

Brooks Morgan, president, Biscuit and Cracker Manufacturers Company, New York, in an article written for the New York Evening Post, opposes some of the duties which have been levied on imported foodstuffs in the new tariff bill now before Congress. He says:

"We food manufacturers who use large quantities of shelled nuts and the retailers who sell our products have come to know the American consumer in a very intimate way. Consequently we are at a loss to understand how even the alert spokesmen for the State of California ever succeeded in persuading the framers of the Fordney-McCumber tariff bill that the American public would submit in patience to an increase of 275 per cent in the tariff on almonds and of 200 per cent in the duties on walnuts and lemon and orange oil.

"It is hardly believable that the Virginia Democrats in Congress could have had much influence with the House Ways and Means Committee or the Senate Finance Committee, but it is possible that they did inasmuch as shelled peanuts, a justly famous product of the Old Dominion, have been scheduled for an increase in duty amounting to 400 per cent. It has been suggested that the tariff makers, by providing such an increase in the duty, were actuated by a desire to embargo peanuts from China and thus exclude from this country a product of coolie labor without materially affecting the price of American-grown peanuts. The American product, however, is not sufficient to supply the demand.

"The Congressional leaders apparently have overlooked the important part that the lowly peanut plays in the diet of the devotees of our national game. They should take heed lest they alienate the votes of the baseball fans; such an outcome would mean political disaster to the party now in power. If vendors at the ball parks are forced to raise the price of a bag of peanuts or to reduce its size in proportion as Congress proposes to increase the duty, riots may ensue that will stop the games, even though Babe Ruth should be slated to bat out a quartet or home runs.

Says Prices Must Advance

"The Fordney-McCumber bill proposes to increase the duty on eggs from 100 to 500 per cent, on sugar 60 per cent, on gelatine 300 per cent. Few laymen have the slightest idea of the enormous advances that the food manufacturers will eventually have to make in their finished products if these higher duties are retained. Such advances will automatically curtail foreign shipments and furnish an incentive for American producers to take advantage of the resulting shortage of these commodities. Few realize also the important part played in the manufacture of food products by such articles as eggs, sugar, gelatine, peanut butter, peanut oil, almond paste, almonds, and walnuts. In spite of the high duties proposed there is not a single product among those referred to that could be produced in sufficient quantity and quality in this country within the next ten years to supply the actual needs of the rapidly growing mass of consumers.

"The housewife rarely prepares a meal without the use of eggs and sugar, and at

least half of the food on the table contains one or both of these articles in some quantity. Sugar goes into every loaf of bread. The consumer should likewise not forget that the 400 per cent increase in the tariff on shelled peanuts is going to be felt in the price of shortenings, the price of all of which is kept within limits by the steadily increasing use of peanut oil for shortening purposes.

"The proposed increase of 200 per cent in the duty on gelatine becomes a matter of importance to the consumer when he realizes the enormous amount employed in making confections, ice cream and the jelly fruit desserts and salads that are being advertised so effectively. He needs to be informed more accurately on such matters in order that the iniquities of the Fordney-McCumber bill may be brought closely home to him. It is certain that when such heavy duties were put into the bill neither the manufacturer of foods nor the American housewife was allowed a hearing. The latter is now armed with the ballot, and the tariff-makers will most likely hear from her later.

Would Benefit a Few Producers

"As already indicated, many of these exorbitant duties on food articles were inserted for the exclusive benefit of a handful of producers in the State of California. All the almonds produced in California will not meet the requirements of three American firms that I could name. In fact, the California product amounts to only about 15 per cent of our total domestic consumption. That State does not produce enough walnuts to supply the demand for filling the children's Christmas stockings. The lemon oil and orange oil that it produces is not enough to keep two of our extract manufacturers going.

"The effort to increase the tariff schedules as outlined here exhibits the extreme selfishness of a few interests concentrated in one State, who coolly propose to hold up the forty-seven other commonwealths and make them pay tribute. Naturally no red-blooded citizen desires to see this country made a dumping-ground for products of the cheap labor of Europe and of the Far East when such products can be produced in this country in fair quantities and at reasonable cost. On the other hand, no good citizen wants to see the anti-dumping argument made a pretext for an embargo on the necessities of life, so as to give a few privileged producers a monopoly of the home market and to allow them to extort heavy profits from the over-burdened consumer.

"Is it good business to cease buying from abroad, if we expect to sell abroad? Can we hope to speed the restoration of normal conditions throughout the world by slamming the door in the face of our neighbors across the water and denying them the right to participate in trade with us to our mutual advantage? Is this humanitarian? Is it even expedient? Does it make for greater efficiency on the part of the American producer if he is carefully shielded by his Government from all competition?

"The enactment of the Fordney-McCumber bill in its present form will mean higher prices for all the manufactured food products of which any of the dutiable articles already enumerated form component parts. American manufacturers produce crackers, cookies, and biscuit to the value of \$200,000,000 per annum and bread and cakes to the value of \$600,000,000 per annum. Most of these products are sold to persons of moderate means, and, as the cost of producing every item will be increased when the new tariff rates become effective, the consumers will inevitably feel the burden."

American Sugar Refining Co. Opens New Baltimore Plant

The American Sugar Refining Company added a fifth big unit to its refining plants recently with the dedication and official opening of the Baltimore refinery at Locust Point, on the Patapsco River.

The ceremonies which marked the opening of one of the largest and the most modern cane sugar refinery in the world, took place exactly two years after ground was broken. They were witnessed by the directors, the officers, the consulting board, which designed the buildings and supervised their erection, representatives of the builder and the consulting engineer and a large part of the official staff of the company. Special cars from Boston, New York and Philadelphia took the directors, officers and special guests to Baltimore. A directors' meeting and a "family luncheon" featured the morning program on the first day.

More than 1,000 visitors were conducted on inspection tours of the plant, the whole afternoon being devoted to entertaining wholesalers and manufacturers in trades allied to the sugar industry from Maryland, District of Columbia, Virginia, North and South Carolina, West Virginia, Kentucky, Pennsylvania and Ohio.

While the directors and many of the official staff of the company returned to their homes at the conclusion of the reception, Earl D. Babst, president, and Fred Mason and Ralph S. Stubbs, vice-presidents, remained over for a reception the second day to the retail grocers of Baltimore. Despite inclement weather, hundreds of grocers took the opportunity to tour the plant and meet the officers of the company and the refinery staff on the fifth floor of the Domino Building, where light refreshments were served.

A corps of about seventy guides, all of whom had undergone intensive training, took charge of groups of twenty visitors and conducted them upon the inspection trips which consumed about one hour and fifty minutes apiece. The route was marked by numbers corresponding to numbers in an attractive booklet presented to each visitor. The explanations of the guides were supplemented by the printed descriptions in the booklets.

The new refinery occupies an undivided tract of twenty-one acres situated upon one of the most ideal sections of the Baltimore water front. It consists of fifteen separate buildings from one to ten stories high of which the refinery group occupies the water front and the administration building, gate house and garage the land end of the area. In between are the molasses tanks, the cooperage and the commissariat. Charles Syer heads the sales force of the new refinery, as manager, and Carl F. Huthlinger is superintendent in charge of production.

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Dutch Food Trade Review for 1921

1921 Business With the United States Seriously Affected by Exchange

Dutch Food Trade

On the whole the United States export trade of dried and canned fruits to the Netherlands was not very satisfactory in 1921, says a recent report of Consul George F. Anderson, at Rotterdam. The high exchange value of the dollar, complicated by the collapse in value of the German mark after heavy purchases of dried fruits had been made by German importers, cut direct imports of these products from the United States to a minimum. The United States also has had almost no part in the trade in fresh fruit and similar supplies. Imports of all fresh vegetables and fruits, dried fruit, canned fruit, and all similar supplies increased from 63,257 metric tons in 1920 to 125,174 metric tons in 1921. Of these imports during 1921 a total of 13,990 metric tons consisted of dried fruits. These imports were as follows.

Kinds of fruit	1920	1921
	Metric tons	Metric tons
Apples	1,377	4,216
Pears	69	236
Prunes	2,893	6,632
Walnuts, etc.	731	1,391
Other dried fruit	869	1,465
Total	5,939	13,990

The United States furnished practically all the dried apples and pears, a large percentage of the prunes, and 85 per cent of the miscellaneous dried fruits.

Vegetable Oils Imported by the Netherlands

At one time in the course of last year it looked as though the trade in American cottonseed oil with the Netherlands would have a banner year, for imports of this oil during the earlier part of the season were exceptionally heavy and the year's record as a whole is exceptionally good though it did not reach the value attained in 1919. As the year advanced oriental vegetable oils became so cheap in comparison with the American oil that it paid importers to bear the expense of extra refining, and as a result the demand for the American product fell off materially. The United States, however, had a large trade in other branches of the fat and oil business.

Larger Imports of Rice from the United States

The Netherlands drew upon the United States for much of its supplies of rice in 1921, American exporters furnishing 29,117 metric tons, valued at \$2,315,181, out of the total of \$6,096 metric tons, worth \$6,167,393, imported during the year.

The Oleomargarine Industry

The margarin industry held its own fairly well on the whole. The factories maintained work at full capacity and increased their trade in some lines. The total exports of margarin from the Netherlands during the year amounted to 69,468 metric tons, valued at \$19,441,000, as compared with exports of 92,989 metric tons, valued at \$33,694,301, in 1920. While there was, therefore, a considerable reduction in the volume, as well as the value of the trade, thus measuring in a way a reduction in the output of the factories, the decline in the latter was not so great as the exports

indicate, for there was a considerable increase in the consumption of oleomargarine in the Netherlands during the year and the domestic business of some of the concerns has increased greatly. The factories met with heavy losses as a result of the drop in the prices of their raw materials in stock at the beginning of 1921 and the year was not a profitable one financially. Practically all of them, however, report that their business is extending both at home and all over Europe.

Great Britain is by far the best customer of the Dutch factories in this trade, taking about 80 per cent of the total exports in 1921. Germany was a good customer in 1920, but by reason of the low value of the mark, dropped out of the trade very largely in 1921. The larger Dutch margarin concerns have branch factories in Germany and in Great Britain and do much of their trade through them. All of the Dutch margarin concerns anticipate a large business in the coming season.

The Cocoa and Chocolate Trade

In spite of the low value of the German mark, or perhaps because of it, German consumption of cocoa was the chief favorable element in the cocoa and chocolate trade of the Netherlands during 1921. The demand for cocoa and chocolate in the United States also was an important factor. The demand in Germany, however, has turned from the goods packed by well-known manufacturers in standard packages to loose cocoa packed in barrels—in other words, to a cheaper form of the goods. Imports into Germany in bulk form are reported as practically double what they were immediately before the war.

The United States was the best customer of Dutch spice dealers during 1921, the volume of this trade being very much larger as the result of a great reduction in prices during the latter part of 1920.

Increased Flour Trade

There was quite a boom in the flour trade of the Netherlands during 1921, imports amounting to 96,656 metric tons, as compared with 54,669 metric tons in 1920. These imports were as follows:

Imports of flour, into the Netherlands in 1920 and 1921.

Kinds and countries of origin.	1920	1921
	Metric tons	Metric tons
Wheat flour:		
United States	35,891	78,383
India .....	.....	2,538
China and Argentina...	8,928	8,125
Total	44,819	89,046
Rye flour:		
United States ..	753	432
Other countries	349	207
Total	1,102	639
Corn flour:		
United States	2,527	3,866
Other countries ..	2,750	798
Total	5,277	4,664
Buckwheat flour:		
United States	2,515	1,935
Rice flour:		
United States	956	372
Grand total	54,669	96,656
Total imports from United States	42,642	84,988

In some respects the trade in flour is very significant of the situation in northern Europe for, inasmuch as exports of flour from the Netherlands in 1921 amounted to 58,287 metric tons, it is evident that a large share of the imports of American flour was passed on to the interior of Europe. The Netherlands export trade in flour has been due largely to the necessity of handling such goods on a spot basis as a result of exchange and currency conditions in central Europe. So long as present currency conditions continue in central Europe much or practically all of this trade must be on what amounts to a local cash basis, and importers of flour or any other staple in central Europe are usually prepared to pay somewhat higher prices for their supplies and avoid the risks attending exchange and delayed shipments from the United States, rather than to attempt to secure supplies at lower rates and run these risks.

Larger Market for Prunes is Developed by Advertising

Following methods employed by other organizations of growers in California, the California Prune and Apricot Growers, Inc., San Jose, Cal., has, by intense advertising, amounting to \$225,000 for the first year and with \$325,000 appropriated for next year, developed a nation-wide market for prunes under the brand name of "Sunsweet." In comparison with pre-war prices of prunes at retail of about four pounds for a quarter, prunes today bring 25 cents and 30 cents a pound, largely because of intensive advertising and educational work.

The best prunes are those that remain on the tree until they ripen, when they are picked and cured without bruising. But the fruit does not ripen evenly and it becomes a matter of saving the greatest number when at their best. The former method was to gather the crop without sorting the ripe from the partly ripe and the result was a general inferiority. Under the new method, the ripest and best prunes are selected and packed as "Sunsweet" and the others graded according to size and quality.

The new organization with about 8,000 members found itself in 1919 called upon to dispose of about \$25,000,000 worth of prunes and apricots. The first year the organization advertised its product there was a record-breaking prune yield of about 290,000,000 pounds. This crop was disposed of and preparations were made for the 1920 crop. Then came the depression in business; buyers in foreign markets returned goods and wholesalers throughout the country began to express lack of confidence in the sale prospects of prunes. H. G. Coykendall, the general manager, however, began advertising, approached dealers with suggestions that "Sunsweet" prunes be displayed prominently and again the prune crop was successfully marketed and at the opening prices.

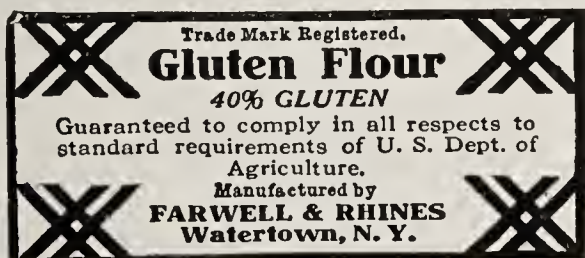
New Cases Involving Resale Price Maintenance

The Federal Trade Commission has issued complaint against two companies charged with "resale price maintenance," in each case the commission believing that the acts of the respondents come within the prohibition of the law as defined by the United States Supreme Court in the case of the Beechnut Packing Company. The companies involved in the commission's charges are V. Vivaudou Inc., New York, manufacturers of toilet articles, and Otto Eisenlohr & Bros., Inc., Philadelphia, manufacturers of cigars.

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Macaroni Manufacturers Meet

Plans for Increasing Consumption and Developing Standards Discussed In Detail

The unprecedented business slump that at present envelopes the macaroni and noodle manufacturing industry on this continent brought about an unexpected interest in the annual conference of the makers of this foodstuff and the annual convention of the National Macaroni Manufacturers Association at Hotel Clifton, Niagara Falls, June 22-23-24, was one of the most enthusiastic ever held by the industry. The attendance was large and thoroughly represented of the industry, with delegates from all the big manufacturing centers east of the Rock Mountains.

Among the problems of particular interest to the industry that held the attention of the manufacturers for three days were: "Increase of Macaroni Consumption"; "Enforceable Standards on Macaroni"; "Proper Egg Ingredients in Egg Noodles"; "Adequate Tariff on Imported Alimentary Pastes," and the adoption by the whole industry of a simple yet efficient uniform cost system that will teach each producer his costs.

Several plans to bring about a much-needed increase in the consumption of alimentary paste in its varied forms were discussed during the "closed session" of the convention to which only legitimate manufacturers were admitted. It was explained that a group of members of the National Association whose output was principally marketed in packages or cartons, had organized themselves for the purpose of popularizing the use of goods in this form. An educational campaign was to be launched having for its purpose the increase in the per capita consumption. The campaign is in charge of C. R. Keene, business manager of the new group whose energies will be expended in advertising this product through dietitians, domestic science teachers and schools and similar mediums for the education of the housewives to the end that macaroni be used more frequently, and not as mere side-dishes but as the real basis of the meal which it readily becomes when properly prepared.

Favored Adoption of Standards

The convention favored the adoption of standards that are enforceable. The present regulations require that macaroni, spaghetti, etc., be made from the "semolina of hard wheat," but since the Department of Agriculture has so far failed to define semolina, nothing can be done towards enforcing the present standards. As the department is now formulating a ruling on "flour," it is hoped that with this as a basis a standard for macaroni and similar foods can be agreed upon that will stand the test of law.

Objections were made to the regulations regarding the egg contents of noodles. Under present standards, noodles must contain at least 5 per cent of whole egg solids in order to label the product "egg-noodles." Many manufacturer object to the use of whites of eggs which easily become smelly and hard to handle, preferring to use egg yolks instead. Egg yolks, beside giving to the noodles the very desirable golden color, also provide a sufficient amount of albumen, the principal element in the white of eggs, so essential in giving to them the lightness wanted.

A resolution adopted favors a change in the present ruling, by striking out the word "whole," permitting the use of 5 per cent of the solids of eggs, either whites, yolks or any combination thereof.

The Ladd amendment to the proposed Fordney tariff act was favored as this provides an import duty of 2 cents per pound, whereas the bill as originally presented called for a duty of only 1½ cents a pound. Telegrams to this effect were sent by the association and by individual manufacturers to the Senate Finance Committee and leading Senators. Since adjournment of the convention the Ladd amendment has passed and it will now rest with the conference committee of both houses to decide.

Cost of Manufacturing

Specific cases were pointed out where goods were being sold at a loss and it was only a question of time when bankruptcy would come to that manufacturer. A committee was appointed to work out a feasible cost-finding system with the assistance of Dr. B. R. Jacobs of the National Macaroni Laboratory of Washington, D. C., and to report its findings at the earliest opportunity possible.

More frequent meetings are favored and sectional gatherings will be held to interest local manufacturers in problems of a local nature while at the same time promoting the welfare of the entire industry.

Henry Mueller of C. F. Mueller Company, Jersey City, N. J., was chosen to lead the activities of the association, virtually the entire industry, during the next year. He succeeds B. F. Huestis of Harbor Beach, Mich., who became the head of the Association last December through the death of C. F. Mueller, brother of the present leader. Mr. E. Z. Vermylen of A. Zerega's Sons, Brooklyn is first vice-president; Lloyd Skinner of Skinner Manufacturing Company, Omaha, Nebr., is second vice-president; Fred Becker, Pfaffmann Egg Noodle Company, Cleveland, is treasurer, a position he had held since the National Association was organized 19 years ago. Robert B. Brown, Fortune Products Company, Chicago, Henry D. Rossi, Peter Rossi & Sons, Braidwood, Ill., and William A. Tharinger, Tharinger Macaroni Company, Milwaukee, were elected members of the board of directors. M. J. Donna of Braidwood, Ill., is secretary and also editor of the official organ of the association, the New Macaroni Journal.

The 1923 convention of the Association will be held in June at such place as the affairs in the industry and in the country warrants in the estimation of the new board of directors which was authorized to make the selection in the early part of the coming year.

Report on Cost of Doing Wholesale Grocery Business Issued

The formal report of the Harvard Bureau of Business Research, on the costs of conducting the wholesale grocery business in 1921, has been issued in a booklet of forty pages. The greater part of the report was included in the address of Dr. Melvin T. Copeland, director of the bureau, before the convention of the National Wholesale Grocers' Association in Chicago.

Recent Patents

The following patents of interest to readers of The American Food Journal recently were issued from the United States Patent Office. Copies thereof may be obtained from R. E. Burnham, patent and trade-mark attorney, Continental Trust Building, Washington, D. C., at the rate of 20 cents each. State number of patent and name of inventor when ordering.

1,417,086. Confectionery-coating machine. John Massarella, Cincinnati, Ohio.

1,417,157. Cake-forming machine. Joseph Fousek, San Francisco, Cal.

1,417,446. Manufacture of confections of the coated type. Nelson E. Brigham, Holyoke, Mass., assignor to Conoid Candy Machine Company, South Hadley Falls, Mass.

1,417,467. Manufacture of corn-starch and products therefrom. Adolph W. H. Lenders and Paul W. Allen, Cedar Rapids, Iowa, assignors to Penick & Ford.

1,417,893. Edible product and process of making same. Carleton Ellis, Montclair, N. J.

1,418,233. Process for preserving in the fresh condition organic matters and particularly meat and fish. Louis A. C. Cholet, Montreuil-sous-Bois, France.

1,418,242. Cheese-mold. Samuel Fieldman, New York.

1,418,357. Apparatus for making margarin compounds and other substances. Harold Borgen, Urmston, and George W. Wadsworth, Flixton, England.

1,418,457. Processes for the preservation in storage of sirups and molasses. William L. Owen, New Orleans, La., assignor to Penick & Ford, same place.

1,418,638. Apparatus for preserving food. Edward M. Frankel and Kaufman G. Falk, New York.

1,418,639. Candy-wrapping machine. Frank B. Lantery, South Easton, Mass.

1,418,715. Feing-machine. Peyton R. Janney, Detroit, assignor to Mills Baking Company, same place.

1,418,749. Food-machine. Josephine & Henry Trust, Park Ridge, N. J., assignors to Meteor Mixing Machine Company.

1,418,777. Apparatus and method for preserving perishable substances. Harry B. Cox, Los Angeles, Cal., assignor to Cox Conservador Company, same place.

1,419,057. Edible product obtained from the sugar juices of beets and process of obtaining it. Paul Kestner, Paris, France.

1,419,131. Oven for toasting cereal foods. Peter W. Foster, Battle Creek, Mich., assignor to Kellogg Toasted Corn Flake Company, same place.

1,419,956. Method of preparing eggs for storage. Victor Clairemont, San Francisco.

1,420,066. Dough-press. Dario Tabucchi, Nice, France.

1,420,373. Method for preserving food. Alfred B. A. Fich, Copenhagen, Denmark.

1,420,436. Confection-coating machine. Vincenzo Matranga, New York.

1,420,486. Automatic bread-molding machine. Joseph Kennedy, Providence, R. I.

1,420,557. Process of preparing dried yeast. Erwin Klein, Voslau, Austria.

1,420,558. Process for drying yeast. Erwin Klein, Voslau, Austria.

Francis H. Leggett & Company Absorb Koenig & Schuster

Koenig & Schuster, New York, wholesale grocers, have merged with Francis H. Leggett & Company under the name of the latter company. Both Carl Schuster and Philip C. Staib of Koenig & Schuster, have become associated with the Leggett organization, the latter as director.

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SAN FRANCISCO

Wholesaler Explains Why He Opened Chain of Groceries

In an article written for the "Journal of Commerce," New York, B. D. Crane, secretary Reynolds-Davis Grocery Company, Fort Worth, Ark., explains the business conditions which lay back of that company acquiring chain stores, while still conducting a legitimate wholesale grocery house. "In years gone by," says Mr. Crane, "we would go to a merchant who, we thought, was good, and tell him that if he would favor us with his business we would carry him through the summer, or from spring until fall, for one, two, three, four or five thousand dollars, and while he would agree to do it in nine cases out of ten we found we would sell him his heavy goods and he would buy a large part of his profitable items from any firm that came along. In other words, we have been backing the credit merchant to do a credit business, and from now on we expect to back the merchant who wants to sell goods for cash."

"The plan of the Reynolds-Davis company is to find a man with \$1,000, who, they believe, is capable of operating a "cash-and-carry" business. The company has its salesman invest \$2,000 with him. In this way the company retains control of the store and the salesman, who is the partner of the man is able to call every week and watch the operation of the store. Actually the salesmen are supervisors of the stores in their territory. The stores cost about \$3,000 to establish and stock with merchandise and they remit every Saturday night for the goods bought during the week."

"We are having our salesman call on other merchants as well as our own," says Mr. Crane, "and will sell them goods at the same price we sell our stores, provided they will discount their bills. While quite a number of retailers quit buying from us for a while, provoked because we opened stores in their town, they are now coming back and about all the trade we have lost is the credit merchants, whose business we do not want."

Bakers Seek to Stop Change in Express Rate on Cake

A petition for the suspension of the changes in classification and increased rates on cake, proposed by the American Railway Express Company, has been filed before the Interstate Commerce Commission by the American Bakers' Association. Under the present classification, the billing weight of a cake shipment is determined by deducting from the gross weight, the weight of the basket, box or barrel in which the cake is shipped. The classification under which the American Railway Express Company proposes to place cake states that mixed packagers consisting of bread and cake, when the weight of the cake does not exceed 25 per cent of the combined weight of the two, shall be charged for at the rates and rules applicable to bread. Such shipments must be clearly marked to show the net weight of the bread and cake separately.

The express company claims that there is not and never was sufficient reason for granting "net weight" and "pound rates" on shipments of cake. This special privilege grew out of the shipment of mixed packages of bread and cake, or bread and doughnuts. As at present applied, the claim is that it constitutes a discrimination against shippers of crackers, fancy cookies and other baking goods. The express company points out that under the

present classification, cake is rated as second class, pound rates applied to the net weight, minimum 27 cents. It proposes the cancellation of the pound rate and net weight provisions and feels that the application of pound rates based on the net weight of cake constitutes a discrimination which is not warranted. This provision was originally made to take care of mixed shipments of bread and cake, and if such shipments are still made, which the record does not clearly show, a separate rule should be made for such shipments, rather than continue the rule in its present form.

In its petition, the bakers' association states that the present net weight and pound rate privileges applied to the shipment of cake have been in effect since the inauguration of the business of selling cake by express shipments in the United States, many years ago, and that their business has been built up on the present pound rate and net weight privileges. Also that cake bakeries have been built in all parts of the United States which were advantageous as shipping centers for cake shipping in reliance upon the continuance of these privileges. Further that the cancellation of these privileges will disrupt the shipping of bread as in many instances the cake shipment is relied upon to fill out the weight necessary for a profitable bread shipment, and that it will amount to an increase of from 80 to 100 per cent over present express charges on cake. The complaint is signed by American Bakers Association; Campbell Baking Company; Drake Brothers Company; Freihofer Baking Company; Gardner Bakeries, Inc.; Grennan Cake Corporation; J. S. Ivins' Son, Inc.; Liberty Baking Company; National Biscuit Company; R. Z. Spaulding Co., Inc.; Schulze Baking Company; Tasty Baking Company; The Berwick Cake Company; The Corby Baking Company, Inc.; The Dexter Baking Company; The F. O. Stone Baking Company; Ward and Ward, Inc.; Ward Baking Company.

Italy Proposes Regulation of Its Canning Industry

A bill regulating the canning industry of Italy by the formation of an Institute of Canned and Preserved Food Industries, has been introduced in the Italian House of Representatives by the Parliamentary Commission on National Economy. The bill requires this institute to co-operate in the inspection and supervision of the Italian canned food production in conformity with the requirements laid down by law.

By the terms of the bill measures for developing the industry will be studied and developed; direct dealings between producers and canners or preservers facilitated; experimental stations for improving the raw material and the technique of the industry provided; and information on the conditions prevailing in the leading markets be secured and supplied to canners.

The institute which will be government controlled will have a president and board of six directors appointed by the assembly of the institute and approved by the Ministry of Industry. It will be made compulsory to certify that all canned goods and preserves have been prepared in accordance with the conditions prescribed by law. All producers will be required to allow samples of their products to be taken at frequent intervals during the period of preparation, and the average analysis resulting therefrom will serve as guarantee of the quality of their output during the year.

Wheat Flour Millers Propose Advertising Campaign

Campaign of publicity pointing out that wheat flour is the cheapest and the most nutritious food was urged before the annual convention by the advertising committee of the Millers' National Federation. The committee urged publicity in prominent national periodicals; permanent publicity in the farmers' periodicals, appealing to the housewife on the farm; the use of the motion picture services of the Government and Henry Ford for educational work; bill posters in cities and signs along railroad routes; special study of bread economics and work among school children; the use of slogans and offers of prizes of \$1000, \$500 and \$250 for short comprehensive slogans; and the introduction into large cities of "bread weeks"

The committee advised the appointment of a general committee whose function would be to initiate a complete survey of the milling industry, provide ways and means of raising the necessary money, the appointment of a general manager to run the campaign and otherwise perfect the machinery of the organization. Following the reading of this report offers of contributions to an advertising fund were made, but the association took no formal action. It was decided that the officers of the federation should give consideration to the preliminary plan outlined.

Alexander Holden Company Engages in Food Brokerage

The Alexander Holden Paper Company, formerly of 20 West Twenty-second Street, New York, has changed its name to the Alexander Holden Company and has removed to 111 Hudson Street, where it will engage in the canned food and dried fruit brokerage business as well as its former line of paper. The new organization is beginning business with a number of accounts from Wisconsin and Coast and Maine sardine packers. Officers of the company are: J. S. Alexander, president; E. P. Holden, vice-president; and E. P. Holden, Jr., secretary-treasurer. J. S. Alexander was formerly with U. H. Dudley & Company. S. R. Roekwood, formerly of the Liberty Steel Products Company, is in charge of the export department. J. W. Pinnell, for a number of years associated with Sears & Nichols Canning Company, is in charge of the canned goods department, and M. A. Baldwin and Roy Powell will represent the company on the road.

Wholesale Grocers Corporation of Chicago Is Renamed

The Wholesale Grocers Corporation of Chicago has been renamed the Durand, McNeil, Horner Company. Frank C. Letts is chairman of the board of directors, and Fred C. Letts, his son, is president and general manager. C. C. Virgil, who is now vice president of the Western Grocer Company and assistant to Frank C. Letts, now president of both the Western Grocer Company and the National Grocer Company, was elected vice president of the Durand, McNeil, Horner Company, and Oscar B. McGlasson is also a vice president. M. L. Horner, Sr., is treasurer, and Robert J. Roulston, secretary.

Postum Cereal Company Offices Now Located in New York

All of the general executive, sales, purchasing and accounting departments of the Postum Cereal Company of Battle Creek, Mich., are now located in the Canadian Pacific Building, New York City.

Volume XVII

The American Food Journal

Number 8

The National Magazine of the Food Trades

Established 1906

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Entered as Second Class Matter at the Post Office at Floral Park, N. Y., under Act of March 3, 1879.

Aunt Jemima Says:

In de magazines? Yes, suh,
I'se in dem which is read by
25 million peoples—workin'
up mo' bizness fuh you all



GROSS profit isn't net profit by a long shot. It costs you money to sell.

But there's a big difference between the cost of handling Aunt Jemima Pancake Flour and the cost of handling some other kind. Because there's a demand for this *known* brand—a demand that makes selling easy and *sure*; that makes big volume by which you automatically cut your selling cost per case and increase your profit *net*.

Sure demand for Aunt Jemima in 1922-23

With the September issue, Aunt Jemima starts a selling campaign in *eight* of the nation's best magazines—Saturday Evening Post, Good Housekeeping, Ladies' Home Journal, Woman's

Home Companion, McCall's Magazine, Delineator, Designer and Pictorial Review.

This campaign will continue into next year. Approximately 54 million Aunt Jemima advertisements will go into the homes of this country through these magazines!

Stimulated demand for Aunt Jemima Pancake Flour and Buckwheat Pancake Flour is bound to come.

Consider this when you do your buying, for it will have a marked effect upon your selling—upon the profit you make out of pancake flour this year.

Put your money into this *known* brand; it's the sure way to make volume-sales easily, to make the turnover and profits that you want.

AUNT JEMIMA MILLS COMPANY, St. Joseph, Mo.

AUNT JEMIMA PANCAKE FLOUR



Back to Nature!

Nature put into two foods—the whole wheat berry and milk—practically everything needed for normal human nutrition. These two great foods are now combined in a delicious new whole wheat loaf

WARD'S HOMESPUN BREAD

THE 100% WHOLE WHEAT LOAF

"Nothing Added—Nothing Taken Away"

WARD'S HOMESPUN BREAD is made from whole wheat flour *only*, specially milled from the highest grade No. 1 Northern Hard Spring Wheat. It is a loaf supreme in food-value and delicious in flavor—a real whole wheat bread, not just a name. A pound and a half of pure nourishment.

HOMESPUN is the result of four years of research work by the technical department of the Ward Baking Company in

the effort to produce an honest, perfect and palatable loaf of 100 per cent Whole Wheat Bread—an effort now crowned by complete success, as evidenced by the remarkable popularity of the new loaf.

"A noble loaf. . . . A more honest bread has never been baked. This is the public's opportunity to prove that it really wants bread perfection."—ALFRED W. McCANN, in the *N. Y. Globe*.

WARD BAKING COMPANY

New York

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Newark

Chicago

Cleveland

Boston

Providence

Pittsburgh

Columbus

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Vol. XVII

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The Food Manufacturer and Nutrition Work

Proper Diet Plays an Important Part in Laying the Foundations for Healthy Citizens of the Future

By WINIFRED STUART GIBBS



FOOD manufacturers will be interested in the nutrition work carried on by the Federation for Child Study in its summer play schools, for members of their own group are helping to further the progress of the movement.

Among these firms are Seaman Brothers, Borden's Farm Products, Inc., Austin Nichols & Co., The A. Goodman Noodle Co., The J. M. Horton Ice Cream Co., The National Biscuit Co., and Mergantime Brothers. All of these manufacturers are giving special care and service in filling the orders of the Childrens' Canteen, which is the official designation of this food work; many are sending generous donations; and in each case, the manufacturer finds himself engaged in a piece of team work that includes educators and philanthropists, civic officers and physicians, housewives and welfare workers.

The children are selected from the crowded districts of New York City, preference being given to those who are considerably below the health and weight standards set by food specialists. They come to the directed play and supervised health activities of the schools, eager to avail themselves of all the attractive features offered and in the words of one small boy, "take up many subjects in play school but the favorite subject is lunch."

Which brings us to the food work and the team work between manufacturers, educators and parents.

Simon Hirsdansky, director of all the schools, said recently:

"Food and food education are vital to the success of the entire play school scheme. Furthermore, we hope some day to incorporate the results of this intensive work in a larger pro-



Simon Hirsdansky
Director of Summer Play Schools

ject, looking toward the development of an all-year school.

"When the children come to the play schools they are given a thorough overhauling by competent physicians, who volunteer their services; careful records are made of weights and measurements; they attend the health classes for instruction in general hygiene and are then ready to profit by the lessons of the school lunch and the food letters which follow.

"This noon day meal, planned as it is by food specialists," continued Mr.

Hirsdansky, "has untold educational value. The children eat as members of a group, rather than as unrelated and self centered individuals, and who can measure the far reaching effects of this? The immediate result is inevitably to increase the actual value of the lunch, since food eaten under proper conditions has increased power to nourish. Then, children of our foreign born citizens carry home information regarding the ways of American dining rooms and experience has seemed to prove that the parents are eager to learn these customs even when they have decided racial preferences for certain foodstuffs or dishes.

"As to the lunches themselves the dietitians in charge aim to make them object lessons in 'what to eat and why.' Here is a typical week:

Menus

Monday

Oatmeal and fresh vegetable soup
Graham Rolls

Ice Cream Milk to drink

Tuesday

Split pea puree with croutons
Rye bread and butter

Rhubarb sauce Cocoa

Wednesday

Creamed string beans

White bread and butter

Apple gelatine Milk to drink

Thursday

Buttered Beets

Graham bread and butter

Blanc mange with fruit sauce

Milk to drink

Friday

Mixed vegetable salad

Parker House rolls

Corn flakes and bananas

Milk to drink

"The lessons of milk, of fresh



Serving the Lunch

fruits and vegetables, of whole grains, of fresh butter and of cereals are thus taught by practical demonstration, and are followed by carefully planned health talks on these same foods.

"Serving the lunch is an interesting feature as each table is presided over by an older child who takes pride in guiding those who sit at his board. Thus there is opportunity to observe and discuss that little group of motives and acts which we call 'table manners,' acts which make or mar the social value of a meal."

Commenting on the place of the food work in the lives of the children, Mr. Hirsdansky said:

"The children of the tenements have no chance of a healthful summer if left to the dangers of New York's semi-tropical streets. The play school takes them into a sanitary building, directs their play, their rest and their

food and so important is this latter that we look upon the lunch hour as the pivot on which turns the entire day.

"When we are able to realize our plans for the larger work this fact will be equally true of the all-year school, so that food manufacturers who are helping in the establishing of the work may feel that ultimately they will have had a hand in securing adequate nutrition for literally millions of future citizens."

Another interesting point of contact with the manufacturer is that made by the children in their poster and booklet work.

After eating the carefully selected foods served at the school lunch they listen to short vivid talks and stories



Truck bringing vegetables for children's lunches

about the place of each of these foods in the diet. The next step in the educational program is to gather material for posters of their own manufacture. These posters tell the nutrition story in gaily colored pictures and the material is clipped from the advertisements of well-known foods.

For example, one little girl made an

attractive booklet from dark brown paper, printing the title, "Food Groups" on the cover and clipping from the magazines a print of the Beechnut Company's bacon and eggs to illustrate the "body builders"; one of Sunkist oranges to represent "body regulators"; another of a Washburn-Crosby bag of Gold Medal Flour to show an example of an "energy giver" and so on, the booklet giving a complete and graphic story of the principles underlying a well balanced diet.

To return to the school lunch.

The work is only partly self-supporting, the children paying ten of the twenty cents per capita which is the cost of the lunch.

The Women's Committee, with Mrs. Fred M. Stein, as chairman, feels that in contributing towards the establishment of such a project manufacturers, physicians and all others interested are helping to build for the future, ultimately, it is hoped to place the work on a self-supporting basis.

Meantime, that the children may be sure of an adequate supply of fresh vegetables, friends in New Jersey, Long Island, Connecticut and New York State are sending whole truck loads of delicious fresh garden products from their own homes.

The play schools are fortunate in their director.

Simon Hirsdansky is an educator of note. Founder of the Hunter Island Farm for Ungraded Children, as well as of the Wage Earners' Institute of New York City, he later became director of Bronx House, a successful settlement and is today Principal of Public School No. 4 The Bronx, one of the largest schools in Greater New York.

The fact that such a man sees the need for co-operation in the food field means that there is real work to be done.

Finally, the American Food Journal has a part in the project, a member of its editorial staff having helped to develop the nutrition program. This same member is now acting as supervisor of nutrition in the play schools, as well as making the personal contacts with the co-operating manufacturers.



Lunch room, Public School No. 4, the Bronx, operated by School Children's Welfare League



Corner of the truck showing vegetables

More Economic and Scientific Methods of Food Distribution Needed, Says Commission

Joint Commission on Agricultural Inquiry Issues Exhaustive Report on Raw Materials and Manufactured Products

SUMMARIZING and presenting graphically, in numerous charts, the situation prevailing in the marketing and distribution of all important food products, the report of the Joint Commission of Agricultural Inquiry, presents the following conclusions:

That there should be a standardization of production of crops in producing centers, so as to permit more economic selection, grading and preparation of commodities in the producer's local markets.

That there should be a greater development of cooperative marketing organizations, fostered when necessary by both State and Federal Government legislation.

That new economies can be brought about through the development of greater uniformity of products, grades, standards and containers, together with an improvement in methods of handling by agencies in local, primary and terminal markets, which will tend to create greater certainty on the part of the receiver and the producer; that economies can also be effected and wastes be eliminated through the establishment of qualified and authorized agencies to arbitrate disagreements between shippers and receivers as to value, condition, kind, grade and quantity of commodities.

That much unnecessary waste and expense in distribution can be eliminated through the development of adequate, organized and correlated terminal markets.

That economic distribution may be better accomplished through the more systematic utilization of warehouses to absorb temporary surplus and distribute more evenly.

That there can be greater improvements in the distribution of perishable products through the establishment of more adequate central wholesale markets and a more uniform flow from producers to consumers.

That converters of agricultural products can materially reduce the cost of distribution of trade-marked commodities by adjusting production more definitely to the current requirements of the public.

OF all the findings, conclusions and recommendations contained in the report of the Joint Commission of Agricultural Inquiry the following is probably fraught with the greatest interest for those engaged in the manufacture and distribution of foodstuffs:

"The disproportionate distribution of the consumer's dollar reflects the importance of giving consideration to more economic and scientific distribution of the essential commodities. It is impossible in this report to trace the course of any considerable number of manufactured food products through all the process of production and distribution. However, the examples gathered are sufficient to indicate that the processes of manufacture have become economical and efficient, while distribution has become expensive and inefficient. One of the outstanding factors in the whole proposition of distribution is that the per capita consuming capacity is limited to requirements, while the combined producing capacity of food manufacturers is in excess of consumer requirements. Therefore the public not only supports the cost of competition among identical articles produced by different manufacturers but is also supporting the cost of competition among various manufactured food commodities."

That wholesalers can reduce the burden of overhead costs by purchasing stocks which can be turned with economic frequency.

That too extensive distribution over larger and larger territories has been the tendency on the part of manufacturers and wholesalers.

That permanent solutions of the problems of distribution must come as a result of a higher standard of knowledge and ability on the part of producers, manufacturers, transporters, storers and distributors and a more enlightened recognition of their obligation to the public.

How Data Was Obtained

The Joint Commission of Agricultural Inquiry, of which Congressman Sydney Anderson of Minnesota was

chairman and Irving S. Paull was distribution analyst and secretary, was composed of House members Ogden L. Mills, New York; Frank H. Funk, Illinois; Hatton W. Sumners, Texas; Peter G. Ten Eyck, New York, and Senate members Irvine L. Lenroot, Wisconsin; Arthur Capper, Kansas; Chas. L. McNary, Oregon; Joseph T. Robinson, Arkansas; and Pat Harrison, Mississippi.

It was formed for the purpose of investigating and reporting upon:

Causes of the present condition of agriculture.

Causes of the difference in prices paid on agricultural products to the producer and by the consumer.

Comparative condition of industries other than agriculture.

The relation of prices of commodities other than agricultural products to such products.

Banking and financial resources and credits of the country, especially as affecting agricultural credits.

The marketing and transportation facilities of the country.

In the investigation of the agricultural crisis, credit and transportation, the commission was able to utilize largely much of the unorganized and unrelated data compiled by various Government departments, the Interstate Commerce Commission and public and private agencies. But it was found that there was practically no fundamental data of a governmental or public character relating to marketing and distribution and it was therefore necessary to make a pioneer effort to obtain from original sources the basic facts of this branch of the investigation.

To obtain this technical assistance and co-operation of the trades affected, the commission set up in each trade or industry a committee to secure and correlate the information desired. With the assistance of these committees, 15,000 questionnaires were sent out and returned. These were designed to show the actual price ranges of representative commodities from 1913 to 1921, reflecting the proportion of the consumer's dollar taken by each distributor, manufacturer or producer. In this way it was possible to check the figures submitted in the questionnaires with the figures submitted by other factors

in the chain of distribution and to assure the substantial accuracy of the figures obtained.

The 15,000 questionnaires sent out covered a total of more than 200 commodities and the final figures taken from these were considered, amplified and correlated by a general committee of representatives of all the trade committees.

Report Covers a Wide Field

The report is not only an attempt to survey conditions of agricultural products, but takes into consideration other contributing items and factors. It deals effectively with grains, wheat, corn, barley, live stock and meats and eggs and oranges, oats and allied trade-marked food commodities, such as rolled oats, corn flakes, canned milk, bread, peanut butter, macaroni, salt, laundry soap and soap powder; also clothing, shoes, men's furnishings, hardware, dry goods, wholesale groceries and operating expenses in the retail trades.

In assembling its data showing the causes of the wide difference between the price of agricultural products paid to the producer and by the consumer, the commission divided its findings into three sections: Marketing, treating with agricultural products from the time they come into the producer's local market until they are sold to the converter or agent performing the first operation of distribution; conversion, dealing with the process of converting the raw products into food, cloth, leather, etc.; and distribution, handling the data of movements, storage and the sale of the finished products from one agency to another until they reach the consumer.

As an example of the thoroughness with which the commission approached its task, one illustration is probably sufficient. In seeking to find the difference between the price paid to the producer for wheat and the price paid by the consumer for bread, instead of tracing the progress of the wheat from the farmer to the bread sold by the baker and retailer, the process was reversed, as it was realized that the identity of the wheat would soon be lost in passing through the elevators and into cars and through other elevators. Instead of the usual procedure the commission started with the loaf of bread and worked back through the retailer, the manufacturing baker, to the miller, to the terminal elevator, to the local elevator, where the relationship of the price of the wheat to the bread was established.

Cooperative Marketing Investigated

In the section of the report dealing with cooperative marketing of products by the producers, the commission points out that the success of cooperation depends in large degrees upon restricting the activities of the associa-

tion to activities in which the members have a mutual financial interest. The inclusion in the activities of the organization of matters outside those of mutual financial concern tends to create dissension and to disrupt the organization upon matters which are not of direct concern to the membership and which are not directly related to their financial interests. Consequently cooperation has been most successful when built around single crops produced in rather limited and concentrated production areas. The products of the farm are usually sold at the local market in small quantities without adequate sorting, cleaning or grading.

The handling of unsorted, ungraded products for which the seller offers no guaranty of grade, quality or marketability involves a risk on the part of

the middleman and results in the middleman necessarily taking a margin to cover the risk which is larger than would be the case if the commodities were graded, sorted, and cleaned by the farmer, or by an organization controlled by him and responsible for the character and quality of the product. Such risks, says the commission, and the added expense of distribution which they cause can be greatly reduced by better organization and standardization of agricultural production through soundly organized cooperative associations.

The success of cooperation, the report continues, cannot rest upon the establishment of artificial control of prices. It must rest rather upon the association's ability to perform the necessary service more efficiently and with greater advantage both to the

Distribution of macaroni manufacturer's dollar:

Cost of raw material....	46.00	47.75	63.17	58.06	59.54	60.56	53.90
Manufacture	21.04	16.13	13.13	15.18	15.70	18.23	19.70
Selling	13.25	11.73	8.83	8.83	8.06	8.35	7.68
Advertising	3.775	3.63	2.39	2.86	3.00	3.81	4.12
Transportation	2.37	3.23	3.02	3.06	3.38	4.10	5.13
Taxes	3.74	5.22	4.58	5.86	5.44	4.95	4.91
Profit	10.23	12.32	4.88	6.15	4.87	.....	4.55

Distribution of canned milk manufacturer's dollar:

	1913	1916	1917	1918	1919	1920	1921
	Cents	Cents	Cents	Cents	Cents	Cents	Cents
Cost of raw material....	67.605	67.185	67.445	80.44	73.645	78.145	64.915
Manufacture	9.145	8.475	8.095	10.33	9.67	12.24	11.85
Selling	2.27	1.9	1.17	1.11	1.245	1.77	2.68
Advertising	1.14	.565	.34	.60	.58	1.22	1.69
Transportation	4.58	4.905	3.13	3.825	4.695	5.11	6.28
Taxes	2.79	2.64	10.395	2.985	5.335	4.66	8.25
Profit	12.17	14.33	9.425	.71	4.83	3.145	4.335

Distribution of peanut butter manufacturers' dollar:

	1913	1916	1917	1918	1919	1920	1921
	Cents	Cents	Cents	Cents	Cents	Cents	Cents
Cost of raw material....	58.40	53.60	60.80	60.50	59.80	61.40	54.10
Manufacture	7.10	8.60	6.20	5.60	7.30	7.20	8.70
Selling	8.90	8.00	7.30	8.00	7.90	7.40	9.70
Advertising	4.90	6.30	5.40	5.10	5.40	4.70	5.40
Transportation	6.90	6.30	5.30	5.10	5.40	5.20	10.50
Taxes	1.30	1.60	1.50	1.70	1.60	2.30	2.70
Profit	12.50	15.60	13.50	14.00	12.60	11.80	8.90

Distribution of corn flakes manufacturer's dollar:

	1913	1916	1917	1918	1919	1920	1921
	Cents	Cents	Cents	Cents	Cents	Cents	Cents
Cost of raw material....	36.19	50.51	59.34	59.28	47.94	57.49	39.19
Manufacture	9.09	10.65	10.66	9.64	8.99	12.91	11.11
Selling	15.62	15.52	6.95	2.40	5.79	6.07	10.00
Advertising	17.02	7.77	3.83	2.69	3.43	4.60	6.16
Transportation	10.28	11.93	10.05	8.60	8.56	9.34	12.51
Taxes	4.33	3.05	4.54	10.22	11.42	5.16	9.57
Profit	7.47	.57	4.63	7.17	13.88	4.43	11.44

Distribution of wheat cereal manufacturer's dollar:

	1913	1916	1917	1918	1919	1920	1921
	Cents	Cents	Cents	Cents	Cents	Cents	Cents
Cost of raw material....	43.7	46.70	56.60	51.40	62.00	40.00
Manufacture	11.00	8.80	11.00	9.30	11.79	15.20
Selling	18.70	17.70	13.30	17.30	16.70	14.90
Advertising	16.00	9.40	9.00	7.80	9.00	6.90
Transportation	8.30	5.20	7.20	6.30	5.40	7.40
Profit	3.50	8.40	*1.20	3.50	*9.50	8.60

*Loss

Distribution of rolled oats manufacturer's dollar:

	1913	1916	1917	1918	1919	1920	1921
	Cents	Cents	Cents	Cents	Cents	Cents	Cents
Cost of raw material....	36.82	41.81	44.06	49.50	38.44	40.77	30.77
Manufacture	11.44	12.97	14.62	13.20	17.32	15.88	12.71
Selling	8.32	7.28	6.63	6.16	7.02	8.30	9.59
Advertising	16.42	10.98	8.43	3.68	11.01	13.28	12.31
Transportation	6.85	7.48	6.32	8.40	9.02	9.33	11.58
Taxes	8.14	5.88	5.33	5.04	4.03	3.35	3.74
Profit	12.01	13.60	14.62	14.02	13.16	9.09	19.30

Distribution of salt manufacturer's dollar:

	1913	1916	1917	1918	1919	1920	1921
	Cents	Cents	Cents	Cents	Cents	Cents	Cents
Cost of raw material....	13.00	19.00	20.00	22.00	19.00	13.50
Manufacture	42.00	34.00	35.00	34.00	45.00	45.50
Selling	30.00	14.00	9.00	11.00	13.00	17.50
Transportation	11.00	9.00	9.00	14.00	10.50	18.00
Taxes	9.00	18.00	9.00	11.50	5.00
Profit	4.00	15.00	9.00	10.00	1.00	.50

Distribution of bread manufacturer's dollar:

	1913	1916	1917	1918	1919	1920	1921
	Cents	Cents	Cents	Cents	Cents	Cents	Cents
Cost of raw material....	44.40	51.80	46.10	57.90	56.00	55.30	47.70
Manufacture	26.70	23.30	22.00	21.40	22.10	19.70	25.90
Selling	20.00	19.30	17.70	17.20	17.60	18.90	20.20
Profit	8.90	5.60	3.60	3.60	4.40	6.00	7.10

producer and the general public than the service is now performed by existing agencies. The commission concludes its statement on farmers' co-operative associations by stating the rational development of these associations will tend to hasten the standardization of agricultural production, improve the distributive processes and reduce their costs and that the organization of such associations should be encouraged.

The report goes rather fully into the activities of marketing and related activities in the Bureau of Agricultural Economics of the Department of Agriculture, taking up its work in farm management, costs of production, crop and live stock estimates, marketing information, standardization work, testing, news service, grain investigations and milling and baking tests, standardization of perishables, containers, warehouse research, etc.

Investigation of Costs of Conversion

In dealing with the subject of "conversion" the commission says: "It is quite generally known that it costs more to sell and deliver the marketable products into which agricultural commodities are converted than to producer and manufacturer. However, it cannot be generally realized, or greater efforts would be made to reduce the cost of marketing and dis-

tribution. On the basis of the vast operation of agriculture and business, a very slight improvement in methods might readily effect a saving of billions of dollars annually in methods."

"The existing system of distribution of manufactured goods is the result of a gradual adaptation of earlier methods, when needs were comparatively few and simple, when production, manufacture and market were localized and when each community was comparatively self-sustaining." The methods, the report continues, were crude in contrast with the present time, much time was consumed in bargaining and manufacturing costs were higher. Improved methods of manufacture of today, through replacement of hand labor with machinery, has increased the volume of production rapidly and at the same time decreased manufacturing costs. With increased production demand was more easily satisfied, with the result that the volume of production at times exceeded the normal requirement and manufacturers found it necessary to create new demand; selling costs were then materially increased and greater effort was made to force goods through the channels of distribution. Increased use of advertising in monthly and weekly magazines and newspapers led to the necessity for

makers of goods to identify their products and guarantee satisfaction. This led to increased branding and trade-marking of goods and packaging of foodstuffs.

With the opportunity offered through widespread circulation of advertising mediums, there developed broadcast distribution of goods and a competition between manufacturers of parallel articles for national markets. Further effort was made by manufacturers to secure economies by volume production and selling efforts through the medium of advertising became more intense. Each new selling device used was adopted by competitive manufacturers with the result that the distribution of manufactured goods became a competition of spending, until a burden of distributive costs were developed in excess of the value of the commodities distributed.

The commission points out, however, that in the competition of identified goods there has developed a greater excellence, uniformity, convenience, hygienic protection and radical change in the living habits of the American people. It is pointed out, however, that these advantages do not sufficiently compensate for the disproportionate cost of the distribution of necessities.

Profits Illustrated By Charts

By use of a chart, made up from the combined average figure of manufacturers in eight groups of trade-marked commodities, the report shows the cost of manufacture compared with the gross margin of the manufacturer over a period of five years compared with 1913. The chart shows that the cost of raw material and manufacture rose from 61.40 cents of the dollar in 1913 to the high point of 72.20 cents in 1920, but declined almost to the pre-war point in 1921, when the cost dropped back to 61.63 cents. While the profit in 1913 was 10.24 cents out of the wholesaler's dollar, it had declined in 1921 to 8.62 cents.

It is stated in this connection that because of the value attached to trade-marked goods by the public, the tendency of the manufacturer is to absorb, out of profits, increases in costs of material, operation and distribution, when such advances appear to be temporary and to also absorb the advantages, which may be derived from reductions in cost of material, manufacture and operation. The chart, presenting graphically the distribution of the dollar received by the manufacturer from the wholesaler shows that in 1921 the cost of materials dropped 10.87 cents out of the dollar of sales under the cost of the previous year, while the cost of manufacture increased 0.3 cents, the cost of

selling 1.75 cents, the cost of advertising 0.48 cents, the cost of transportation 2.57 cents, and the cost of tax 1.17 cents, leaving a gain of 4.68 cents. The gain was absorbed in the profit for the year.

During the war period, 1917 and 1918, and during the year following the war, the cost of selling and advertising was considerably modified by the fact that the demands from the Government for food for the Army and from the populations of the Allies created a degree of shortage in the United States, which is reflected in the steadily rising prices and decreased cost of distribution. The cost of materials entering into the production of 1920 and the cost of manufacture showed an increase, as did selling, advertising and transportation. That these additional costs were to some degree absorbed by the manufacturer is indicated in a reduced profit in 1920. The tabulated figures covering the various items of cost, expressed in cents of the dollar received by the manufacturer were as follows:

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The charts covering such commodities as canned milk, rolled oats, wheat cereal, salt, macaroni, peanut butter, corn flakes and bread and package goods, generally classified under one head, all show much the same fluctuation in costs during this period from 1916 to 1921, compared with 1913,

the pre-war year. The accompanying tables show specifically the proportions of the manufacturer's dollar distributed for raw materials, manufacture, selling, advertising, transportation, taxes and profit.

In the chart presented to show the distribution of the dollar of the manufacturer of packaged goods, for which eight groups of trade-marked food commodities were used, the report points out that it is an example of the extravagance too frequently displayed by manufacturers who determine to capture a market through sheer weight of money and energy, and to force merchandise through the channels of distribution. The table showing distribution of the dollar, from which this chart was made is shown on the following page.

This manufacturer, continues the report, is endeavoring to create a demand for a product in a market that is already supplied with similar commodities of established reputation. In an extremely competitive market, which apparently is fully satisfied with the existing brands, the effort is to secure a portion of the established market through a determined expenditure of money in advertising and selling. This leads to an increased expenditure on the part of other manufacturers to protect their established markets; distribution effort becomes simply an offensive and defensive display of extravagant spending."

Distribution and the Service of the Wholesaler

In the distribution of food products the report says of the wholesale grocer: In a measure he serves as purchasing agent for a number of retail grocers and maintains contact with manufacturers. He buys in quantities and distributes in smaller quantities to retailers and extends to them credit and service. When the wholesaler merely serves as a distributing agent for the manufacturer and fails to function as purchasing agent for the retailer and the consumers within the territory supporting him, he ceases to perform a truly economic service.

In dealing with specific food products and the cost of distributing them, shown in detail in the accompanying tables, the report dwells upon the high cost of distribution. Of corn flakes it says: "That it should cost approximately an average of 63 cents of the consumer's dollar to distribute 37 cents worth of corn flakes, indicates a very definite need of an improvement in the processes of distribution. During the period shown in the table, the producer received for his corn in his local market an average of 22.1 cents out of the dollar which the ultimate consumer paid for the corn manufactured into corn flakes. The service of transporting, grading, handling, and selling to the manufacturer costs on the average approximately 7.5 cents. In 1921 the manufacturers had reduced the cost of advertising and selling to 11.8 cents out of the dollar the consumer paid for corn flakes, in comparison with an expenditure of 16.7 cents in 1916 and 21.3 cents in 1913 for the same purpose. It seems quite probable that an increased turnover of corn flakes on the part of the wholesale grocer and the retail grocer could materially reduce their operating expenses."

Of rolled oats the report says: "It is extremely difficult to reconcile the cost of distribution of rolled oats with the cost of producing oats and converting them into a food product. That it should cost 15.37 cents of the consumer's dollar in 1921 for the manufacturer to advertise and sell rolled oats in packages would indicate that the consumer is paying for more competition between trade-marked brands than the value of the commodity would justify."

The report also gives tables and charts on oleomargarine, California oranges, fresh beef, etc. These tables are shown in the accompanying tabulation.

Chain Stores

In speaking of chain stores the report points out that the claim is frequently made that such organizations eliminate the expense of the wholesaler. "This, however," it says, "is not the case, in view of the fact that the functions of the wholesaler are performed in warehousing, assembling

and distributing in connection with retailing. In some instances combining the functions tends toward economy, but there is no indication that the cost of performing the wholesale functions can be eliminated through the mere change in description. Results of the commission's survey indicate that the cost of supervision and expense of conducting large chain-store organizations do not materially modify the average cost of grocery

distribution at wholesale and retail.

"The majority of chain-store systems carry principally package goods—teas, coffees, spices, eggs, butter, margarin, and articles of greatest frequency of stock turn and smallest degree of waste or deterioration. The majority of chain stores are operated on cash-and-carry basis, making no deliveries, extending no credit, and serve as distributing agents rather than purchasing agents.

	1913 Cents	1916 Cents	1917 Cents	1918 Cents	1919 Cents	1920 Cents	1921 Cents
Distribution of the dollar received by the manufacturers of eight selected food commodities:							
Cost of raw material....	48.09	47.52	52.65	56.49	52.77	54.61	43.74
Cost of manufacture	13.31	16.32	14.54	14.84	15.44	17.59	17.89
Selling	10.39	12.25	8.28	7.05	7.70	8.46	10.21
Advertising	8.49	5.35	3.74	2.39	3.99	4.29	4.77
Transportation	5.31	6.38	5.22	5.41	6.38	6.19	8.76
Taxes	4.17	3.32	5.41	6.59	5.27	4.92	6.09
Net profit	10.24	8.86	10.16	7.23	8.45	3.94	8.62
Selling price	100.00	100.00	100.00	100.00	100.00	100.00	100.00

	1917 Cents	1918 Cents	1919 Cents	1920 Cents	1921 Cents
Cost of raw material	56.20	73.70	67.30	52.10	61.60
Manufacture	6.80	4.40	3.80	4.20	4.86
Selling	10.20	9.40	18.10	21.30	25.10
Advertising	15.10	11.10	24.80	26.10	23.80
Transportation	6.20	5.70	8.30	12.10	12.70
Taxes	3.70	2.70	2.90	2.60	1.90
Profit	1.90	7.10	25.10	18.40	29.80

Distribution of dollar consumer pays for corn flakes

	1913 Cents	1916 Cents	1921 Cents
Production			
Producer receives	16.2	29.1	21.0
Transportation	2.9	3.5	5.9
Elevator margin and profit.....	4.5	3.9	1.6
Cost of manufacture	5.9	7.8	8.1
Total	29.5	44.3	36.6

	1913 Cents	1916 Cents	1921 Cents
Distribution			
Manufacturer's cost of selling	10.2	11.1	7.3
Advertising	11.1	5.6	4.5
Transportation	6.8	8.6	9.1
Taxes	2.8	2.2	7.0
Profit	4.9	.5	8.3
Wholesaler's operating expense	6.7	6.9	8.3
Profit	2.0	1.7	.4
Retailer's operating expense	14.6	10.8	13.3
Profit	11.4	8.3	6.0
Total	70.5	55.7	63.4

Distribution of dollar consumer pays for rolled oats:

	1913 Cents	1916 Cents	1921 Cents
Production			
Producer receives	23.10	25.99	17.83
Transportation	1.22	1.33	2.04
Elevator margin and profit .....	.76	1.82	1.73
Cost of manufacture	7.82	9.02	8.92
Total	33.00	38.16	30.52

	1913 Cents	1916 Cents	1921 Cents
Distribution			
Manufacturer's cost of selling	5.69	5.06	6.73
Advertising	11.22	7.63	8.64
Transportation	4.68	5.20	8.13
Taxes	5.56	4.09	2.62
Profit	8.20	9.46	13.55
Wholesaler's operating expense	6.44	6.59	7.99
Profit	1.98	1.34	.74
Retailer's operating expense	14.84	15.48	15.68
Profit	8.39	6.99	5.40
Total	67.00	61.84	69.48

Distribution of dollar consumer pays for bread:

	1913 Cents	1916 Cents	1921 Cents
Production			
Producer receives	28.0	32.7	28.1
Transportation	2.8	2.3	2.6
Elevator margin and profit	1.1	2.3	2.8
Flour manufacture .....	.6	.7	.6
Transportation	2.4	2.8	4.4
Cost of bread manufacture	8.7	9.5	12.3
Total	43.6	50.3	50.8

	1913 Cents	1916 Cents	1921 Cents
Distribution			
Manufacturer's cost of selling	15.7	15.2	16.4
Overhead	12.2	8.8	8.5
Profit	7.0	4.4	5.7
Retailer's operating expense	13.8	15.4	15.7
Profit	7.7	5.9	2.9
Total	56.4	49.7	49.2

"There is a growing tendency on the part of chain-store systems to engage in manufacture of products for distribution through their own organizations, or to contract for manufactured goods, to be sold under their own brand and label. It is quite probable that such operation tends toward reduction of selling costs as between the functions of manufacture and wholesale and retail. However, these organizations have not assumed the service responsibilities to communities and producers that are required of the individual retailers, wholesalers, and manufacturers."

Conclusions on Cost of Distribution

The report says of distribution as a whole:

"This disproportionate distribution of the consumer's dollar reflects the importance of giving consideration to more economic and scientific distribution of the essential commodities. It is impossible in this report to trace the course of any considerable number of manufactured food products through all the processes of production and distribution. However, the foregoing examples are sufficient to indicate that the processes of manufacture have become economical and efficient, while distribution has become

expensive and inefficient. One of the outstanding factors in the whole proposition of distribution is that the per capita consuming capacity is limited to requirements, while the combined producing capacity of food manufacturers is in excess of consumer requirements. Therefore the public not only supports the cost of competition among identical articles produced by different manufacturers but is also supporting the cost of competition among various manufactured food commodities. This competition is further complicated by the fact that manufacturers are constantly striving for national markets and make vast expenditures to enter communities already sufficiently supplied by manufacturers of similar products. In this effort large advertising appropriations are made for the purpose of influencing the public to demand certain brands, while specialty salesmen are employed to urge retailers to stock extensively in anticipation of the demand that advertising will presumably create. The orders received from retailers become the compelling argument to force wholesalers to purchase in sufficient quantity to fill the retailer's orders and afford this reserve stock.

In conclusion, the report says:

"Economical distribution can be secured only when there is a steady, orderly flow of products through the channels of distribution in response to consumer demand. An effort to force goods through the channels of distribution invariably leads to congestion, and intermittent periods of production and idleness, which are reflected in cycles of prosperity and depression.

"The existing methods of distribution cannot be materially influenced by any individual firm or corporation acting alone, nor can any individual firm or corporation be specifically arraigned for conforming to prevailing methods in the face of severe competition. However, individual concerns can in reasonable measure modify cost to the ultimate consumer by adopting such policies in production and distribution as will permit and encourage a steady, orderly flow of their merchandise through the stores of the wholesaler and the retailer in such quantities as will afford opportunity for frequency of stock turn and a consequently reduced burden of operating overhead cost against the unit of merchandise."

Vegetable Oils May be Obtained from Wastes

Sunflower and Tomato Seeds are Two of the Productive Sources of Oils of Commercial Utilization

ALTHOUGH there are a number of productive sources of vegetable oils used in the arts and in the manufacture of food products, investigations by the United States Department of Agriculture indicate that valuable edible oils may be obtained in paying quantities from waste products and from seeds, such as the sunflower, not yet grown to any great extent in this country. At the present time the principal sources of vegetable oils are flaxseed, cottonseed, soy beans, corn germs, peanuts, palm, rape seed, tungnuts, perilla, mustard seed, sesame, castor beans, and olives.

The development of tomato catsup and soup manufacture has resulted in a great production of tomato seed each year that has been going to waste. The oil from these seeds has been found after refining to be a suitable food oil. By pressing, the yield is about 18 per cent of the dry weight of seed, and if a solvent is used the yield is increased to 20 or 22 per cent. In Italy, where the tomato-pulping industry has been developed on a large scale, tomato seed oil is a commercial product. It is estimated that the equivalent of 1,500 tons of dry seed is produced annually in the United States.

Many hundred tons of wild oil seeds, principally brown mustard and charlock, are obtained in the screen-

ings from the grain elevators in the Northwest. Most of the oil from these seeds is used in the manufacture of soap and other technical products.

The sunflower is a possible source of oil, a large quantity of it having been made from sunflower seed in Russia before the war. The cold-pressed oil is used for culinary and other purposes where a high-grade edible oil is required, while the hot-pressed is employed in making soaps and Russian varnishes. In 1911, more than 500 mills in the Caucasus were engaged in pressing sunflower seed. It is possible that the sunflower may some day be an important oil-producing plant in this country. The crop is now grown to quite an extent in some parts of the country, notably Missouri, for poultry feed.

Considerable quantities of okra seed could be produced every year by letting the plants ripen seed after the harvesting season is over. This seed contains about 18 per cent of an oil that much resembles cottonseed oil; in fact, okra and cotton belong to the same botanical family.

Cohune nut oil, which is obtained from the fruit of a variety of palm tree that grows in Central and South America, has been examined by the department. It resembles coconut oil and can replace it for many purposes. The supply of these nuts is almost un-

limited and several firms are now attempting to establish the manufacture of the oil on a commercial basis.

Although during the war there was a scarcity of fats and oils in some countries, it seems that there are plenty of sources from which to obtain them in this country and many other parts of the world.

Honey Production Increased

The yield of honey per colony of bees to July 1 is reported by the United States Department of Agriculture to be 30 pounds for the United States, compared with 23.7 pounds in 1921 and an average of 22.5 pounds for the seven years 1915-21. Yields in the North Central States have been practically double the usual yields at July 1, when slightly less than half the crop is usually produced.

The strength and healthfulness of the colonies are reported to be 93.2 per cent of normal, compared with 89.8 per cent last year and 89.3 per cent the seven-year average. The condition of honey plants is 83.8 per cent of normal, compared with 78.6 per cent on July 1 last year and an average of 83.5 per cent.

Generally favorable conditions are indicated by these figures. The situation in California is very good, notwithstanding the yield from orange bloom was not as abundant as usual.

Uses of Dairy Products in Manufacturing Foods

Much More Economical to Use Condensed or Powdered Milk Than the Fluid in the Making of Bread, Cakes, Etc.

By HARRY W. REDFIELD, Ph.D.

Chief of the New York Food and Drug Inspection Station, Bureau of Chemistry

A GREAT many manufacturers have the false belief that the work of the U. S. Bureau of Chemistry is destructive and not constructive, that its function is one of suppression and not one of development, and that its activities are those of police control through the enforcement of the Federal Food and Drugs Act and not those of education. This bureau understands the Federal Food and Drugs Act to be a corrective and not a punitive law, the prime purpose of which is not to punish anyone but to improve the food and drugs supplies of the nation, for the good of the ultimate consumer, and where this can be accomplished by helpful advice and criticism, given freely to manufacturers who are unwittingly violating the law; that course is by preference adopted, reserving legal action for those who are wilfully and knowingly manufacturing adulterated and misbranded products for purposes of illegitimate financial gain.

In the giving of such advice and criticism it is necessary to draw freely upon what has been learned through contact with the trade, passing along whatever may legitimately be passed along for the general good and without betraying any confidence or trade secrets. It is in that spirit that the following statements are made.

Bread made with milk, not only loses less weight in fermentation and in baking, but is more palatable, more nutritious and remains fresh for a longer period of time. Milk bread is a trade builder as well as a body builder. But little fluid milk is used in making milk bread, partially skimmed sweetened condensed milk or dried milk being the products most generally used and both having their strong advocates.

In the making of cake on the large scale, partially skimmed sweetened condensed milk has been almost universally adopted as the result of experience.

Those who have been most successful will use nothing except skim milk powder in making prepared flours in which retention of flavor and holding quality are the two essentials. Prepared flours containing whole milk powder cannot be depended upon to remain free from rancidity for more than two or three months on the grocers' shelves.

Sweetened Condensed Milk Preferred

There is a very definite consensus



Harry W. Redfield, Ph.D.

of opinion on the part of large manufacturers that for quality and economy in making custard and cocoanut pies, sweetened condensed skim milk is preferable to either fluid milk or dried milk.

All of the milk products in all sorts of combinations are used for preparing the ice cream mix. Fluid milk is rarely used in any other than small amounts, except where a concern making ice cream also operates a dairy business and uses up surplus milk in this way. The tendency seems to be more and more to use skim milk powder and unsalted butter as the chief ingredients, homogenizing the mix at pasteurizing temperature in order to get as smooth and uniform a product as possible.

For caramels and fudge, condensed sweetened whole milk with or without powdered whole milk is what is most used. The majority seem to favor the combination with whole milk powder in order to secure the best flavor, good binder and the smoothest mix. For the finest quality of caramels, fresh cream or cream powder is also added.

For milk chocolate, a few concerns still use fluid milk or condensed milk but they have a hard time getting rid of the water so introduced. Most manufacturers have adopted powdered whole milk, which produces a milk chocolate which stands up well even at summer heat with only a slight tendency to become rancid. The latest development and one which is rapidly gaining ground is the use of skim milk powder and butter oil employed in the same proportions as the solids not fat and the fat are present in whole milk, and the product so made is claimed to retain its flavor permanently under the most trying conditions without any rancidity developing.

In a zone of heavy market milk demand, such as the New York metropolitan area, it is much more economical to use milk products in all manufactured foods requiring milk than it is to use fluid milk.

Canners Show Great Interest in Proper Labeling

A recent questionnaire sent out by the National Canners' Association to its membership to ascertain what activities of the association its members are most interested in, resulted in about a 78 per cent return expressing a desire for information on the subject of labeling. About 76 per cent stated an interest in technological research and about 66 per cent expressed an interest in food regulation.

The percentage interested in various of the activities of the association were as follows: Labor laws, 65 per cent; production problems, 61 per cent; cost accounting, 57 per cent; sales contracts, 55 per cent; freight rates and box specifications, 52 per cent each; income tax, 47 per cent; trade mark information, 46 per cent; sanitation, 45 per cent; waste disposal, 44 per cent; court decisions, 43 per cent; food poisoning reports, 42 per cent; and bulletins, 41 per cent.

It is stated that there has been a constant demand at the offices of the association for bulletins on box specifications, 1919 census report, the canners' directory, tax on child labor employment, new labeling regulations, cost accounting, statistics on corn, peas and tomatoes, Haskin recipe book and others. There has also been a widespread interest in vitamins.

Making Roquefort Cheese in America

How the Dairy Division of the United States Department of Agriculture Has Copied French Process Here

By WILLIAM G. LEE

Dairy Division, U. S. Dept. of Agriculture

AMONG the delicacies appearing on hotel menus and on the tables of connoisseurs in comestibles, Roquefort cheese has found a place for many years. Its vogue has not been confined even to modern times, for we find in history that French peasants used it on ceremonial occasions about the year 500. It is not likely that they confined their use of it to ceremonial occasions. In Roman literature we find reference to this or a similar cheese, which Pliny states was "the cheese most esteemed at Rome."

The demand for Roquefort in the United States has been such that large quantities of it were imported before the war. In 1914, some 5,418,904 pounds of cheese was imported from France, valued at \$1,032,817. Probably about 2,000,000 pounds of this was Roquefort. It is one of the highest priced cheeses on the American market, and if it could be made profitably in our own country in large quantity it would be of considerable importance.

There are a number of serious obstacles, however, and it has been necessary to conduct careful scientific work in order to overcome them. The Dairy Division of the United States Department of Agriculture has undertaken these researches and carried them out with such success that the cheese can now be made in this country on a commercial scale. In fact, it is being so made, though not very largely as yet. These researches were begun even before the late war; but it was the war demand for food in France, cutting off the supply of cheese for export to America, that gave an impulse to the actual establishment of a Roquefort manufacture on this side of the water.

Some of the Difficulties Encountered

In building up a successful method of making Roquefort in this country certain difficulties presented themselves, due to differences in the type of milk available in France and in the United States, and to the absence in this country of some natural advantages which are found in the part of France where Roquefort is made. Perhaps the best idea of what these difficulties consisted of may be obtained by a brief description of how Roque-



Punching holes in Roquefort cheese to admit air, so that the mold, which gives the required flavor, will grow

fort cheese is made in France, and how such difficulties have been met in this country.

In France the cheese is made from sheep's milk. While sheep are not kept for milk in America, they are extensively used for that purpose in some European countries. Hundreds of thousands of sheep are milked for cheese-making in the neighborhood of Roquefort, France. This town is situated in the department, or county, of Aveyron, in the southern part of the country. Almost all the Roquefort cheese in the world is made from sheep's milk produced within 50 miles of Roquefort village. It is made up in that town and cured in the famous caves in the hills close by. Firms with offices in Roquefort largely control the world's supply.

The sheep in Aveyron have been bred up for milk production as cows have been in this country, and they yield so much that the milk of one

ewe during her six months' milking period may suffice for 40 pounds of cheese. In 1908 it was estimated that within the 50-mile radius from Roquefort 450,000 sheep produced the raw material for 19,845,000 pounds of cheese.

Since we do not milk sheep in America, except a relatively few in the west, it is necessary to make the cheese from cow's milk. In fact, cow's milk is used to some extent mixed with sheep's milk, even in France. The cheese makers maintain a rigid inspection to prevent the inclusion of any large amount of cow's or goat's milk, but do admit two or three per cent. Sheep's milk is considerably richer in butterfat than cow's milk; on the other hand, it is also richer in casein, so that the proportion is about the same, and if a larger amount of cow's milk is taken, the results in either case are about the same, as far as this aspect of the business is concerned.

Sheep's milk makes whiter cheese than cow's milk, because the butterfat is whiter; and whiteness is a marked characteristic of imported Roquefort cheese. Yellowness is a common ground of criticism of cow's milk Roquefort. Naturally this trouble is worse in summer, which is the cheese season, and the time of year when the milk is yellower from the cows being on pasture. The same natural conditions have made bright June yellow the standard color for butter. The difficulty with yellow color in Roquefort cheese has not yet been overcome, but otherwise it appears that very good Roquefort can be made from cow's milk.

Flavor Comes from the Growth of Mold

It is generally believed that the flavor of Roquefort cheese comes from the mold growth. This possibility, however, is wholly dependent upon proper ripening. By ripening is meant the development of the mold which gives the characteristic flavor. When Roquefort appears on the table the eye is at once caught by the dark green or bluish spots scattered throughout the substance of the cheese. These spots are mold; and

there are several green-mold varieties of cheese. The Gorgonzola is made in Italy; and the Stilton in England. Both of these brought about the same price as Roquefort on the American market before the war. It is the same kind of mold in all three; its scientific name is *Pencillium Roqueforti*, and it produces from the fat in the milk certain fatty acids which have a sharp peppery taste, the well-known flavor of Roquefort, Gorgonzola, and Stilton cheese. Roquefort is generally considered the finest of the three. Gorgonzola and Stilton are made from cow's milk; Roquefort from sheep's milk, in the place of its origin.

How the Cheese Is Made

In making the cheese, milk is curdled and the whey drained off, and then the curd is put in layers alternated with layers of mold powder, which is liberally sprinkled over the successive layers of curd, with a pepper box. Thus the mold is implanted in the interior of the cheese. The mold powder is prepared by shaking up a culture of Roquefort mold in sterilized water, and then injecting some of this water into loaves of bread with a pipette. After the loaves have been inoculated they are left two or three weeks until the mold has spread thoroughly throughout the bread. Then the bread is ground up as fine as pepper, and this constitutes the mold powder used in making the cheese. After inoculating, the cheese is left a few days, and then salted; after which it is left another week, and then scraped to remove what is called the slime, a sort of paste forming on the outside, composed of softened cheese, whey, salt, and micro-organisms other than Roquefort mold. It must be scraped two or three times, at intervals. This is an expensive process, as it takes off 6 or 8 per cent of the cheese.

The next act is punching. Oxygen is necessary for the proper development of the mold, and in order to insure its entrance each cheese is pierced with steel needles in 20 to 60 places. In France a specially constructed machine is used for this purpose, which will punch from 6 to 12 cheeses per minute. Punching favors the mycelial growth and hastens the ripening. After being punched the cheeses are set on edge instead of on their flat surfaces as previously. The new position brings more air in contact with the mold.

To give opportunity for the mold to grow, the cheese is sent to curing rooms—caves of the earth in France, artificial curing rooms in America—where it must remain for a few months.

The Famous Caves of Roquefort

The second chief peculiarity of the conditions in Aveyron is the equipment of natural curing rooms found in the caves in that locality. The hills around Roquefort are full of lime-

stone caverns. These have many openings to the outside, and also are full of moisture. The evaporation produced by the rushing air currents keeps the caves very cool the year round. The combination of coolness and moisture seems to be essential to the proper growth of Roquefort cheese mold. When the Dairy Division undertook to make this cheese, it became necessary to devise artificial curing conditions which would parallel those in the caves. It is easy enough to secure refrigeration; we have it in use for many purposes; but the ordinary refrigeration is accompanied by dryness of the atmosphere, and this is fatal to the proper ripening of the cheese. If the curing room is too dry the cheese ripens slowly, surface molds fail to develop, and flavor is impaired. On the other hand, if the air is too moist around the refrigerating coils, the coils become coated with frost, and their efficiency is reduced.

Methods Used in Dairy Division Cheese Factory

In the Dairy Division laboratory and cheese factory at Grove City, Pa., an air washer is used, which consists of a series of sprays through which the air is drawn. The water in these sprays is itself cold, having first flowed over direct-expansion ammonia coils which cool it to about the freezing point. The air that has been moistened with these sprays of ice-cold water is led into the curing rooms through openings in the ceiling. Being at the top of the room, the air falls, and thus circulates throughout. The temperature of the room is regulated by thermostats which control the admission of the cool, moist air.

Right curing conditions seem to carry with them the solution of various other difficulties. Drying out of the cheese, too much or too little salt, proper growth of the surface and interior molds, proper flavor and texture, all seem to be dependent to a greater or less degree upon proper curing conditions. Experience at Grove City has shown that by the use of such equipment Roquefort cheese which possesses good quality and sells on the market can be made from cow's milk.

Obtaining the Roquefort Mold

During the early weeks of ripening a soft reddish crust grows upon the cheese, which is interspersed with patches of white and green mold. The latter in most cases is the Roquefort mold. Only the green mold is found in the interior of the cheese; it seems to develop most rapidly at the middle, perhaps because that is the last part reached by the influence of the salt. In the earlier stages of ripening, the cheese often appears bitter to the taste. Later this condition disappears, and a sweet, piquant flavor is noticeable, with little or no suggestion of bitterness. Under proper condi-

tions the texture of domestic cheese can be made to approximate closely that of imported cheese. The typical peppery flavor is found in some cases, and in others not. Imported cheese made wholly or chiefly from sheep's milk will have more of the peppery taste than a cheese of the same ripeness made from cow's milk.

Occasionally the mold and flavor so far fail to develop, that it is needful to pierce the cheeses once more, and expose them again to the free air of the curing rooms. The cheese is left in the curing room for two or three months; it is then wrapped in tinfoil and placed in storage, where it will ripen still further if not sent at once to market. At the time of wrapping in foil there should be abundance of mold and some flavor, but after it has been in foil for a few months the flavor should be considerably improved.

Americans Light Eaters of Cheese

While the water content is slightly greater, the food value of Roquefort is in general about the same as that of Cheddar (ordinary yellow cheese); and when ordered in hotels is served in portions of about the same quantity. However, it is used especially in salad dressings, and in blends with other kinds of cheese, to give piquancy. Not all people care for the peculiar flavor of Roquefort, and as it is so high priced, of course, it is not so much used as the ordinary cheese. For that matter, Americans are light eaters of cheese in general, as compared with some other nations. It might be an improvement in our dietetic customs if we would get in the habit of using more cheese.

Commercial Conditions Not Favorable Yet

While the manufacture of Roquefort cheese in this country has been perfected from the technical point of view, conditions on the commercial side are not so favorable. Manufacturers in France have the advantage of cheaper labor. Again, their natural curing rooms, which throughout the ages have been found so highly efficient, give them a decidedly cheaper means of curing than our artificial arrangements for the same purpose, even though the latter be thoroughly effective. Before the war the French used to sell Roquefort here for about 45 cents retail. War conditions raised the prices, but for the last six months or a year they have been coming down, and may very likely go as low as before. American manufacturers find difficulty in competing with such prices.

About 10,000 pounds a year are made in Pennsylvania; some 2,000 pounds in New York; and a few hundred pounds on the Pacific Coast.

The method of making Roquefort cheese is described in detail in Bulletin 970 of the Department of Agriculture, which may be had by writing to the Dairy Division, Washington, D. C.

THE CONFERENCE TABLE

A Means by Which the Manufacturers, Consumer, Research Worker and Educator May Discuss Their Common Problems

By WINIFRED STUART GIBBS

Food Production and the Industrial Chemist

EVERYONE who is at all observant has noticed a gradually increasing interest on the part of the people in the cleanliness of the food they buy. They have always been interested in the price, and also in the quality, as that term is ordinarily understood, but cleanliness has been for the most part neglected until very recently. This is not true with respect to the preparation of food in the household. Our mothers and grandmothers and great grandmothers were clean because cleanliness was to them inseparable from decency. Their immaculate kitchens were sources of personal pride, and their method of preparing and caring for foodstuffs were worthy of all praise, not because they knew why it was so necessary to be clean, because they did not, but because their natural instincts and their early training taught them that dirt and right living could not go together.

"Consumer education has made rapid strides during recent years and no one is more rejoiced than the progressive food manufacturer, for such education helps to insure adequate appreciation of his own self-imposed standards. The consumer must be given that to which he is entitled, safe, wholesome food of uniform quality. One function of the industrial chemist is to assist the manufacturer in securing such a product and to further the efforts of the organization with which he may be connected in supplying the consumer with an article of food physiologically fitted to his needs."

The speaker was William G. Tice, chief chemist for the Hills Brothers Company, packers of Dromedary Dates, Dromedary cocoanut and other food products.

"The food industry," continued Mr. Tice, "is basic and the largest industry of every country. Improvements and economies affecting the production, preparation, distribution and preservation of foods hold a place of vital importance. The expansion in this field, though gradual, has been as natural as any process in biology which has efficiency for its uncon-

scious aim. This growth has resulted in a development of manufacturing methods and many manufacturers of food products have established departments of chemical research and control."

The Hills Brothers Company has such a department devoted to chemical and bacteriological control, research, and chemical engineering. Chemical control has to do with the examination of the supplies and materials which enter into the finished product, research to the development of new products, and chemical engineering with the installation of new, and improvement of, manufacturing methods.

The protection against contamination and the prevention of waste due to spoilage is an important element in any large food manufacturing plant. As practically all cases of spoilage are portance of careful bacteriological due to invasion by bacteria, the industries is at once, apparent.

A properly organized scientific department will have contact not only with the operating end of the business alone but with the sales, advertising and purchasing departments. "During the past few years," continued the chemist, "in every place where there is a desire to progress, there has been considerable development along the lines of chemical engineering and manufacturing methods."

No sooner had he spoken than in came a young mechanic asking advice about installing a machine that is to help in developing toothsome dainties from the by-products of the Dromedary specialties.

Mr. Tice was educated at Columbia University and the University of Pennsylvania and holds the degrees of B.S. and M.S. For a number of years he was connected with the State of New Jersey holding the position of chief chemist of the State Department of Health. He was also a collaborating chemist for the Bureau of Chemistry, U. S. Department of Agriculture, Washington.

One feels that here is a man who knows his work and one who stands ready to take part in any activities calculated to promote public health and welfare.

It is to be hoped that consumers may have an increasing number of op-

portunities to observe the great pains expended in their behalf by the industrial chemist, since this would go far toward broadening the knowledge of our standard food products.

This laboratory visit brought another thought.

The field of industrial chemistry is a broad one and home economists might do well to keep it in mind when advising students concerning vocational choices. Systematic field trips to industrial laboratories might easily be the means of developing individual aptitudes, thus bringing to the field of food chemistry those specially fitted to carry forward projects in food standards as they affect public health.

Co-operation in Educational Food Advertising

ACCORDING to a writer in "Baking Technology" the recent Bread and Milk Week conducted by the bakers of Reading, Pa., has led to permanent public interest in Reading's undernourished school children.

The bakers selected a group of underfed children and employed a dietitian to supervise for these children a diet, the chief elements of which were bread, milk and fresh butter.

The experiment was so successful that The Conference Table is led to suggest a wider application of the idea.

Why not a series of these feeding experiments, conducted by Chambers of Commerce in various cities?

Each Chamber of Commerce might plan the project so that manufacturers of ALL foods should be represented, thus featuring the place that each foodstuff has in a well rounded dietary. Could any team work be stronger or more productive of real public good.

The groups of children might be selected with the cooperation of the chief welfare organizations, while prominent physicians interested in child health could no doubt be found to give their services as an advisory board and the expenses, salary of dietitian, etc., would be small compared with the widespread good that would be accomplished, both in helping the

children and in good, honest advertising of the highest type for every manufacturer represented.

The data compiled from such experiments would be priceless as a basis for developing future cooperation. State Colleges and other home economics institutions would no doubt be glad to cooperate in giving advice as to the best methods for extending the work.

Naturally in such a scheme publicity would be of primary importance. That the press is already interested in developing good advertising along constructive lines is shown by the account of a prize winning booth recently set up by the Cleveland Plain Dealer.

The National Retail Grocers' Association met in convention in Cleveland during the week of June 26. A feature of this meeting was the "show" conducted by the local grocers' association in the ball room of the Winton Hotel, convention headquarters. National manufacturers as well as local were given an opportunity to exhibit their merchandise.

It has always been the feeling of the Cleveland Plain Dealer that there are a goodly number of grocers who fail to appreciate the amount of selling that is done for them and the important part the newspaper plays. To visualize this cooperation to the grocer the Plain Dealer displayed in its booth a package of every food and grocery store product that is now being advertised in its columns or whose advertising was carried by the Plain Dealer during the last campaign on

this product in Cleveland. The booth itself represented a huge reproduction of a first page of the Plain Dealer from which the center had been torn and all these products neatly arranged on shelves in this opening. It was good enough to win the second prize of \$100.

Grocers from all over the country, of course, recognized familiar packages—the comment was frequently made "Why, you've got a complete grocery store here," which it indeed was, since the majority of food products are being advertised, and if ad-



vertised in Cleveland "they're all in the Plain Dealer."

It is almost a foregone conclusion that the press of the country would gladly co-operate in a series of dietary advertising such as is outlined at the beginning of this article.

Here is an outline plan for such an experiment:

Co-operative Food Advertising, Any City, Any State

Organizers of Project. The local Chamber of Commerce to take full charge of organizing the project, raising funds, selecting site for carrying out experiment, inviting the health department to sponsor the plan and informing the press of progress made. These various details to be carried out through committees of public spirited citizens.

Co-operating Agencies, Manufacturers and distributors of bread, butter, milk, cheese, meat, eggs, fruit, vegetables, and in short ALL foodstuffs needed to make up a healthful diet.

Outside Contacts. A group of underfed children to be selected by the local relief organizations; an advisory medical board to be made up of local physicians; a committee from the local women's clubs to be invited to help in developing plans; the technical educational institutions to be invited to aid in summarizing data and in analyzing the data so as to make best use thereof in spreading information as to results.

Dietary Work. The dietary work to be in charge of a competent dietitian, and the experiment to be so planned that the time element, ages of children, physical condition, etc., be duly considered, so that the work shall be on a truly scientific basis.

What city will be the first to institute food advertising for the public health's sake?

Extensive Program for Chemical Society Convention

The fall meeting of the American Chemical Society will be held in conjunction with the Pittsburgh section, Sept. 4 to 9, at the William Penn Hotel, Pittsburgh. The program calls for registration, a council meeting and entertainment on Monday; addresses of welcome, several papers and further entertainment on Tuesday; divisional meetings and entertainment on Wednesday and Thursday; and informal inspections and excursions to in-

dustrial plants on Friday and Saturday. It is pointed out that members attending the convention may continue on to New York to the National Exposition of Chemical Industries, open from Sept. 11 to 16.

Among the papers of interest to the food industry, which will be presented, is a joint symposium held by the biological and agricultural and food chemistry divisions on the subject of "Fatty Foods," with Dr. David Wes-

son as chairman. Papers dealing with the preparation, purification, digestibility, adulteration, etc., of various fatty foods are expected for this symposium. Vitamine papers will be included.

The secretary of the division of "Agricultural and Food Chemistry" is C. S. Brinton, 134 South Second Street, Philadelphia, and the secretary of the division of "Biological Chemistry" is J. S. Hughes, Manhattan, Kan.

Composition and Nutritive Value of Yeast Grown in Vitamine-Free Media

By JUANITA E. DARRAH, M. S. A. M.

Research Specialist in Nutrition for the State of Florida

CERTAIN physiological chemists have for some time been at work on the theory that the vitamine content of a nutrient solution might be measured according to the rate at which yeast cells will grow when placed in the solution. The factors influencing the growth of yeast are so numerous, however, that yeast growth should not be taken as a conclusive test of the quantity of vitamine B present in any solution. Among the investigators who have called attention to this fact are Souza, McCollum, Nelson, Fulmer, Cessna and Sherwood.

Treatment with alkali destroys the water soluble B vitamine but does not impair extracts of wheat or alfalfa as yeast growth stimulants. Evidently the stimulant is not water soluble B.

MacDonald and McCollum were successful in growing yeast for several months in a vitamine-free medium. This was accomplished by securing an infinite dilution of any vitamine material which could have been carried with the original inoculation of the yeast. Their vitamine free medium was adopted in our experiments with the addition of a higher concentration of sugar.

Detailed accounts of the laboratory processes which we adopted have been included in a recently published paper.

Our experiments also included work to determine whether or not the vitamins fat soluble A and water soluble B and water soluble C may be synthesized by yeast.

To test yeast for content of fat soluble A rats were fed the following ration:

Rolled oats	40	gms.
Casein	15	
Gelatin	10	
Salts	3.7	(McCollum's No. 185)
Dextrin	31.3	

100

This ration is free from fat soluble A vitamine. The eyes of the animals became very sore and the conclusion was, after replacing the dextrin with an equivalent weight of yeast with no beneficial results, that yeast will not synthesize the fat soluble A vitamine.

In testing for water soluble B vitamine the ration was:

Casein	18	gms.
Salts	3.7	
Agar agar	2	
Dextrin	71.3	
Butter Fat	5	

Left on this diet for four weeks the rats became nearly stationary in weight. At that time 2 per cent of



Juanita E. Darrah, M.S., A.M.

yeast was incorporated in the diet. One rat died of polyneuritis. It took the rats a long time to get back to normal. The consumption of yeast ration was good.

In testing for water soluble C two guinea pigs were fed on the ration following:

Soy beans cooked	60	%
Wheat germ	10	
Casein	10	
NaCl	1	
CaCo ₃	2	
Maize	12	
Butter fat	3	
Cod liver oil	2	

100 %

This is a scurvy diet and in the early stages of the disease the pigs were given 1 gram each of moist yeast with a medicine dropper daily. After eleven days there was no evidence that the yeast had helped him to resist the disease.

Another series of experiments was that bargained on to determine the presence of amino acids in yeast.

To sum up the results of all the experiments the conclusions were:

1. Yeast may be grown in vitamine free media through an exceedingly large number of transfers.

2. Yeast grown in this way contains protein and nitrogenous bases of undoubted nutritive value.

3. Evidence of dietetic value due to vitamine content of yeast ipse facto is not substantiated.

4. Yeast does not appear to be an active synthesizer of vitamins from other materials.

5. There was only slight indication of the presence of vitamine B and none of vitamins B and C in yeast grown in vitamine free.

One of the chief sources of deficiency in the dietary of this section is the rather limited quantity of milk consumed. This applies more especially to certain rural communities.

The experiment to illustrate this point was conducted with albino rats. A basal diet was fed which contained rice, grits, salt pork, sweet potatoes, cane syrup, and a very small amount of collards. One group of animals was fed this monotonous "cracker diet" without milk. To one group was given in addition whole milk powder equivalent to one glass of milk per day calculated on basis of the calories provided by milk, when one glass of milk per day is taken by the average child of five years. To a third group of animals, a ration supplemented by whole milk powder equivalent to one quart of milk in the dietary of a child of five.

A great difference was observed in rate of growth, adult size, appearance and behavior of the rats on these different rations. The group receiving milk equivalent to one glass per day were intermediate in size between the other two groups. Behavior was normal. Those rats which got no milk were stunted, rough coated and of vicious and nervous disposition. They showed a tendency to have scaly, bloody ears and tail. The live animals were sent to the county and state fairs for exhibition in the nutrition booths. Considerable interest was thus aroused in the topic of milk consumption. They were also used to illustrate lectures to groups of school children.

Extravagance Keep Prices High

"Get our heads out of the clouds, get back to earth and eliminate all extravagance and waste," says Director James Foust of the Bureau of Foods, Pennsylvania Department of Agriculture. "Based upon actual observation in handling the food problems of the State, we are living in an abnormal atmosphere and while there may be profiteering by some of our dealers, yet most of the responsibility for the present high prices of foodstuffs rests with us and extravagance and waste are our greatest faults."

EDITORIAL

"The Vitamine Hysteria"

"A VITAMINE hysteria is sweeping the country," declared Dr. A. J. Carlson of the University of Chicago, who was a witness in the Senate committee hearing on the Voigt bill, which aims to prohibit the shipment in interstate commerce of filled milk compounds. Dr. E. V. McCollum of Johns Hopkins University, also a witness, concurred in this view.

These statements support the opinion which has been freely expressed on previous occasions by The American Food Journal that too much stress is being placed by many food producers and others in the advertising and sale of products supposedly of high vitamine content.

Expert witnesses at the Washington hearing reiterated what has repeatedly been declared by eminent food scientists, namely that in a diet for adults, who presumably do not require vitamins to the extent that growing children do, a balanced ration is ample protection against the so-called deficiency diseases. As for infants, it was clearly brought out at the filled milk hearing by Dr. McCollum and others that cases of rickets have developed in children that were breast-fed and also among those fed on fluid milk and that fluid milk, of itself, does not always afford all of the protection required by infants, cod liver oil, orange juice and tomato juice often being added in cases of malnutrition.

Dr. McCollum laid stress, however, on the point that the customary adult diet is composed too largely of meat, bread, potatoes and sugar, and that these foods, while of themselves valuable, are not a proper diet when not supplemented by other foods, among which he mentioned milk and leafy vegetables in particular.

The various hearings which have been held in the past year or two by Congress and State Legislatures on filled milk legislation have at least served to focus public attention on the work which food scientists are doing for human welfare. These scientists may differ on points which to the layman may appear insignificant, but in the main their views on the general proposition of proper nutrition vary slightly, if at all, and they have contributed much from their store of knowledge which if presented in the usual form of technical books would not have become so thoroughly impressed upon the public.

Even as the public should be further educated, so should the food manufacturer take heed of the newest developments in the science of nutrition. By so doing he will learn not to make unwarranted claims for his product which cannot be supported by scientific fact. If he were taking full cognizance of the newer knowledge of nutrition he would not make the rash assertion, as has one cereal manufacturer recently in high-priced periodical advertising, that his cereal eaten three times a day constitutes a perfect diet, or words to that effect.

No one food—not even milk, despite the claims which the milk people make for it—is a perfect food. This statement has also been reiterated so many times that its real significance should begin to impress itself upon more food manufacturers. All GOOD foods are needed in the human dietary, in their proper proportions, and this fact, sooner or later, should become so thoroughly impressed on our minds that food producers of one group will see the folly

of attempting to increase the consumption of their own product by tearing down the value of another product that is not a competitor in the real sense.

The spirit of antagonism which has grown up in recent years among various food producing groups is painful and unnecessary. We may not hope for that utopian day when food manufacturers will reconcile their supposedly conflicting interests and work together for the common good, but we do believe the time will come when food producers will work together in more friendly competition and not with that spirit of antagonism which animates some of these groups today.

The Voigt Bill

IN all probability the report of the sub-committee of the Senate Committee on Agriculture and Forestry, which has been conducting hearings recently on the Voigt bill, designed to prohibit interstate shipments of filled milk compounds, will not be considered at this sitting of the Senate, which will probably conclude its session with disposal of the tariff measure. But eventually—probably at the next session—the report will go before the Senate for approval or disapproval of the measure.

We have watched these hearings closely, and also have paid close attention to previous hearings, which have been held by State Legislatures, and we have yet to find sufficient weight of evidence against filled milk compounds to justify National legislation. The vitamine theory of nutrition, upon which the proponents of the bill pin their faith, is not yet well enough understood, as most of the food scientists who testified have declared, to warrant such legislation.

Having no axe to grind in the matter, but desiring that simple justice shall be done in the interest of food manufacturers, distributors and consumers, we urge every reader of The American Food Journal to write at once to his Senator, calling attention to the grave danger of enacting legislation of this character in the interest of a single industry, the dairy industry, which from an economic point of view, at least, should welcome the advent of skim milk compounds as a new outlet for its products and to utilize the large quantities of skim milk that now go to waste.

As Dr. Eugene A. Aggers, an economist of Columbia University, New York, stated to the sub-committee, "those who fear that the sale of milk compounds will hurt the dairy business are not familiar with the history of similar economic situations. * * * In my opinion, the dairy industry should encourage rather than discourage the compound business."

A potentially great industry will be killed off if this bill becomes law and a wholesome and cheap food product, admitted as such by food scientists, will be taken from those who can ill afford to buy whole milk in the quantities which it is desirable that they should have it.

Announcement

Part IV. of "Food Flavors: Their Source, Composition and Adulteration," by J. W. Sale and W. W. Skinner of the Bureau of Chemistry, United States Department of Agriculture, will appear in an early issue.



Senate Makes Numerous Changes in Food Tariffs

Specific Rates Increased But Retention of Ad Valorem Schedule Not Based Upon American Valuation Makes for Lower Duties

THE Senate has completed its consideration of the agricultural schedule of the McCumber-Fordney tariff bill, and it is now possible for the food industry to see just how the Senate differs from the House as to the protection which should be afforded. A large number of changes were made in the bill by the Senate Finance Committee, and considerable time was devoted to their discussion. After being passed by the Senate, probably early in August, the bill will go to a conference committee consisting of representatives of the House and Senate, where agreements will be made as to what changes shall be retained when the measure is finally passed.

The Washington Bureau of The American Food Journal has compiled the following comparison of Senate and House rates on the items of interest to the industry, where changes were made, the Senate rate being given first:

Bacon, hams and shoulders, 2 cents per pound (House rate 1 1-4 cents per pound; lard compounds and lard substitutes, 5 cents per pound House rate; 20 per cent ad valorem).

Reindeer meat, venison and other game (except birds) not specially provided for, 4 cents per pound (House bill; reindeer meat, 20 per cent ad valorem; venison and other game not specially provided for, 1 1-2 cents per pound).

Meats, fresh, prepared or preserved,

not specially provided for, 20 per cent ad valorem (House bill; sausage casings, weasands, intestines, bladders, tendons and integuments, not specially provided for; meats, fresh, prepared or preserved, not specially provided for, 15 per cent ad valorem).

Milk paragraph: Cream powder, six cents per pound (House rate, 8 cents per pound). The Senate also included other butter substitutes with oleomargarine, dutiable in both bills at 8 cents per pound.

Cheese, and substitutes thereof, 5 cents per pound, but not less than 25 per cent ad valorem (House bill; cheese, valued at less than 30 cents per pound, 5 cents per pound; valued at 30 cents or more per pound, 25 per cent ad valorem; cheese substitutes, 5 cents per pound).

Birds, dead, dressed or undressed: Poultry, 6 cents per pound (House rate, 4 cents per pound); all other, 8 cents per pound (House rate, 20 per cent ad valorem); all the foregoing, prepared or preserved in any manner and not specially provided for, 35 per cent ad valorem (House rate, 22 per cent ad valorem).

Eggs of poultry, in the shell, 8 cents per dozen (House rate, 6 cents per dozen); whole eggs, egg yolk, and egg albumen, frozen or otherwise prepared or preserved, and not specially provided for, 6 cents per pound (House rate, 4 cents per pound); dried whole eggs, dried egg yolk, and dried egg albumen, 18 cents per

pound (House rate, 15 cents per pound).

Honey, 3 cents per pound (House rate, 2 1-2 cents per pound).

Sea Food Rates

Dried fish, salted or unsalted, 1 1-4 cents per pound (House rate, 4 3-4 cents per pound); the Senate provided a rate of 2 1-2 cents per pound for smoked herring, skinned or boned.

Herring and mackerel, picked or salted, whether or not boned, 1 cent per pound (House rate, 1 1-2 cents per pound).

Fish (except shellfish), by whatever name known, packed in oil or in oil and other substances, 30 per cent ad valorem (House rate, 26 per cent ad valorem); all fish (except shellfish), pickled, salted, smoked, kippered, or otherwise prepared or preserved (except in oil or in oil and other substances), 25 per cent ad valorem (House rate, 20 per cent ad valorem).

Crab meat and lobster meat, packed in ice or frozen, or prepared or preserved in any manner, 15 per cent ad valorem (House rate, crab meat, 26 per cent ad valorem); fish paste and fish sauce, 30 per cent ad valorem (House rate 28 per cent ad valorem); caviar and other fish roe, 30 per cent ad valorem (House rate 28 per cent ad valorem).

Rates on Cereals

Barley, 20 cents per bushel (House rate, 15 cents per bushel); buckwheat, 10 cents per 100 pounds (House rate

30 cents per hundred pounds); corn or maize, including cracked corn, 20 cents per bushel of 56 pounds (House rate, 15 cents per bushel); macaroni, vermicelli, noodles, and similar alimentary pastes, 2 cents per pound (House rate 1 1-2 cents per pound).

Oats, hulled or unhulled, 15 cents per bushel of 32 pounds (House rate 10 cents per bushel); unhulled ground oats, 45 cents per 100 pounds (House rate 32 cents per 100 pounds); oatmeal, rolled oats, oat grits and similar oat products, 90 cents per 100 pounds (House rate, 60 cents per 100 pounds).

Paddy or rough rice, 1 cent per pound (House rate, three-eighths of one cent per pound); rye, 15 cents per bushel of 56 pounds (House rate, 10 cents per bushel); rye flour and meal, 45 cents per 100 pounds (House rate, 30 cents per 100); wheat, 30 cents per bushel of 60 pounds (House rate, 25 cents per bushel); wheat flour, semoline, crushed or cracked wheat and similar wheat products not specially provided for, 78 cents per 100 pounds (House rate, 50 cents per 100).

Cereal breakfast foods, 25 per cent ad valorem (House rate, 17 per cent ad valorem); biscuits, wafers, cake, cakes and similar baked articles, and puddings, whether or not containing chocolate, nuts, fruits or confectionery, 30 per cent ad valorem (House rate, 28 per cent ad valorem).

Apples, green or ripe, 30 cents per bushel of 50 pounds (House rate, 25 cents per bushel). The Senate inserted a new paragraph: "Apricots, green, ripe, dried, or in brine, one-half of 1 cent per pound; otherwise prepared or preserved, 40 per cent ad valorem."

Berries, edible, in their natural condition or in brine, 1 1-4 cents per pound (House rate, 1 cent per pound); dried, desiccated or evaporated, 2 1-2 cents per pound in both bills; otherwise prepared or preserved, and not specially provided for, 35 cent ad valorem (House rate, 20 per cent ad valorem).

Cherries, in their natural state or in brine, 2 cents per pound (House rate, 1 1-2 cents per pound); maraschino cherries and cherries prepared or preserved in any manner, 45 per cent ad valorem (House rate, 20 per cent ad valorem).

Cider, 5 cents per gallon (House rate, 10 cents per gallon).

Fruits and By-Products

Citron and citron peel, candied or otherwise prepared or preserved, 5 cents per pound (House rate, 4 cents per pound); orange and lemon peel, crude, dried, or in brine, 2 cents per pound; candied or otherwise prepared or preserved, 5 cents per pound (House bill: orange and lemon peel, crude, or in brine, candied or otherwise prepared or preserved 2 cents per pound).

Figs, prepared or preserved in any manner, 40 per cent ad valorem (House rate, 20 per cent ad valorem);

dates, fresh or dried, 1 cent per pound; prepared or preserved in any manner, 40 per cent ad valorem (House rate, dates, 1 cent per pound); raisins, 2 1-2 cents per pound (House rate, 2 cents per pound). The Senate also provided a rate of 2 cents per pound for currants, Zante or other. Grapefruit, one-half cent per pound (House rate, 1 cent per pound).

Peaches and pears, dried, desiccated or evaporated, 2 cents per pound (House rate, 1 cent per pound); otherwise prepared or preserved, and not specially provided for, 40 per cent ad valorem (House rate, 20 per cent ad valorem).

Pineapples, 22 1-2 cents per crate of one and ninety-six one-hundredths cubic feet; in bulk, three-fourths of 1 cent each; candied, crystallized, or glazed, 40 per cent ad valorem; otherwise prepared or preserved in any manner, 2 cents per pound (House bill: Pineapples, three-fourths of one cent each; prepared or preserved in any manner, 3 3-4 cents per pound); plums, not specially provided for, 40 per cent ad valorem (House rate, 20 per cent ad valorem).

Paragraph 748: All jellies, jams, marmalades and fruit butters, 40 per cent ad valorem (House bill: Pickled fruits and nuts and sauces of all kinds, not specially provided for; comfits, sweetmeats and all jellies, jams, marmalades, fruit butters and similar products, 28 per cent ad valorem).

Fruits, not specially provided for, and mixtures of two or more fruits, prepared or preserved, 40 per cent ad valorem (House rate, 20 per cent ad valorem).

Almonds, not shelled, 5 cents per pound (House rate, 4 cents per pound); shelled 15 cents per pound (House rate, 12 cents per pound); coconut meat, shredded or desiccated, or similarly prepared, 2 cents per pound (House rate 4 1-2 cents per pound); walnuts, not shelled, 4 cents per pound (House rate 2 1-2 cents per pound); shelled, 12 cents per pound (House rate, 7 1-2 cents per pound); pecans, unshelled, 3 cents per pound (House rate, 1 cent per pound); shelled, 6 cents per pound (House rate, 2 cents per pound). The Senate also provided a duty of 35 per cent ad valorem for edible nuts, pickled or otherwise prepared or preserved, and not specially provided for.

Mushrooms, 45 per cent ad valorem (House rate, 33 1-3 per cent ad valorem); peas, green or dried, 1 cent per pound (House rate, 75 cents per 100 pounds); peas, split, 1 1-4 cents per pound (House rate, 1 cent per pound); onions 1 cent per pound (House rate, 75 cents per hundred pounds); white or Irish potatoes, 58 cents per 100 pounds (House rate, 42 cents per 100 pounds); dried, dehydrated or desiccated potatoes, 2 3-4 cents per pound (House rate, 3 1-2 cents per pound); potato flour, 3 cents per pound (House rate 1 1-2 cents per pound).

Tomato paste, 45 per cent ad valorem (House rate, 28 per cent ad valorem); tomatoes, prepared or preserved in any manner, 15 per cent ad valorem (House rate, 10 per cent ad valorem); vegetables, in their natural state, not specially provided for, 30 per cent ad valorem (House rate, 20 per cent ad valorem).

Chocolate and Cocoa

Chocolate and cocoa, sweetened or unsweetened, powdered or otherwise prepared, valued at 20 cents per pound or less, 1 cent per pound; valued at more than 20 cents per pound, 2 cents per pound; cacao butter, 30 per cent ad valorem (House bill: Chocolate and cocoa, sweetened or unsweetened, powdered, or otherwise prepared, 17 1-2 per cent ad valorem, but not less than 2 cents per pound; cacao butter, 3 1-2 cents per pound); ginger root, 20 per cent ad valorem (House rate, 15 per cent ad valorem). The Senate inserted a paragraph making sago flour and tapioca flour dutiable at one-half cent per pound, and tapioca flake or pearl, three-fourths of one cent per pound.

It should be borne in mind that the adoption by the Senate of ad valorem duties as provided by the House is in effect a reduction in the duty, since the House ad valorem rates were based upon the American valuation of the commodity, while all Senate ad valorem rates are based, as in the present law, upon the foreign valuation.

Price Maintenance

AS a result of the recent decision of the United States Supreme Court in the Beech Nut Packing Company case, the Federal Trade Commission has dismissed, without prejudice to its right to institute new proceedings, a number of formal complaints which have been on file for some time involving price maintenance.

Included in the food companies whose cases have been dismissed are the Ward Baking Company, New York; General Chemical Company, New York (baking powder); H. L. Hildreth Company, Boston (confectionery); Massachusetts Chocolate Company, Boston (confectionery); Crescent Manufacturing Company, Seattle (baking powder, tea, etc.); and the Pennsylvania Salt Manufacturing Company, Philadelphia.

These cases, the commission stated, involve resale price maintenance and were suspended by the commission to await the determination of the Beech Nut Packing case.

The commission has instructed its chief examiner to institute a new inquiry with respect to each of the dismissed cases and, if it appeared that violations of the law were found to exist within the meaning of the Beech Nut decision, to report the facts to the commission for determination as to whether or not new complaints should be issued.

Experts Disagree at Filled Milk Hearing

Conflicting Opinions Presented in Testimony Before Senate Committee on Voigt Bill

CHARGES that the Voigt bill to prohibit the shipment of filled milk in interstate or foreign commerce is part of a trade fight calculated to put the manufacturers of milk compounds out of business were aired early in August during a hearing in Washington held by a sub-committee of the Senate Agricultural Committee, composed of Senators McKinley, of Illinois, chairman, and Ladd, of North Dakota, and Kendrick, of Wyoming. While the hearings consumed several days the time was chiefly occupied in going over ground covered before and in airing the charges made by Alfred R. Union, an attorney representing the Hebe Company, Chicago.

Mr. Union was one of the first witnesses to be heard by the sub-committee and made flat charges that the legislation against milk was fostered by the Borden Company for the sole purpose of putting the Hebe Company, its principal competitor, out of business. He declared that when the hearing was concluded he believed that the committee would send the data to the Federal Trade Commission for investigation as the action of the Borden Company would be found to come within the unfair practices which the commission was established to wipe out. He asserted that the proposed legislation was class and sectional legislation; that it had been fostered by certain dairy interests backed by the Borden Company; that Congress had been asked to legislate in the interests of one manufacturer in order to put another out of business, and that as a matter of fact it was a trade fight in which there had been widespread propaganda to make the people believe that the legislation was intended to protect the babies of the country.

Opponents of the bill had been given no notice of the hearing held June 29, Mr. Union told the committee, and the notice of the hearing set for July 7 reached them in Chicago only the night before the hearing was to be held, too late for them to be present. Mr. Union charged that the Voigt bill had been prepared under the guidance of the counsel for the Borden Company, and pointed out that the bill had been so worded that it would not prevent the sale of Borden's Chocolate Malted Milk since that product was chocolate-colored and "not in the semblance of milk." This, he declared, was sufficient evidence to show that the bill was intended primarily to get Hebe off the market.

Cotton Seed Crushers Oppose Bill

The cotton seed crushers of the United States fear that the Voigt bill

A Digest of Food Scientists' and Medical Men's Views on Filled Milk Legislation

Dr. Casimir Funk, Associate Professor of Physiological Chemistry, College of Physicians and Surgeons, New York: "While I would not recommend filled milk as a food for infants—although it probably would not injure them if used for a time—neither would I recommend any condensed milk containing sugar, or evaporated milk. Skimmed milk is a good food, but not a complete food."

Dr. A. J. Carlson, University of Chicago: "Skimmed milk is an excellent food and the proteins of milk, which it contains, are as valuable from a food point of view as the fats of milk. The passage of legislation which would hamper the use of a vast quantity of skimmed milk for food purposes would be detrimental rather than helpful to the public health."

Dr. Eugene A. Aggers, economist of Columbia University, New York: "I can see no economic reason why skim milk compounds should be legislated against. In fact, I can see good reasons for fostering the industry. The skim milk residuum of this country about equals the protein value of all of the meat consumed and yet 95 per cent of it is wasted. In calorie value one can of the skim milk compound in question equals a quart of whole milk. And those who fear that the sale of compounds will hurt the dairy business are not familiar with the history of similar economic situations. On the other hand, statistics have shown that the sale of whole milk has increased as the compounds have become more popular and, in my judgment, the dairy industry should encourage rather than discourage the compound business."

Dr. E. V. McCollum, Johns Hopkins Hospital, Baltimore: "While the chief difference between whole milk and skimmed milk is the loss of Vitamine A, there is no definite knowledge yet as to the quantities of Vitamine A needed for children or adults, although it has been ascertained that an adult needs less than an infant. There is no harm in giving children milk compounds, provided they are not used as a substitute for whole milk, nor is there objection to the use of filled milk by bakers."

will have a widespread influence upon the use of their oil, according to Louis N. Guelbert, representing the Interstate Cotton Seed Crushers' Association. He insisted that the measure contained a sweeping statement that all vegetable oils were deleterious and harmful, a statement, he said, which was disproved by the use of such oils covering hundreds of years. He criticised statements made by Charles W. Holman, representing the National Milk Producers' Federation, earlier in the hearing, in which Mr. Holman said that coconut oil contained impurities because of the manner in which it was handled. He asked Mr. Holman if he did not know that coconut oil, prior to usage, is refined and deodorized by a process which kills all germs which it may contain.

Babies have been fed on skimmed milk for long periods with no bad results, according to Dr. Joseph Brennemann of the Children's Hospital, Chicago. Dr. Brennemann gave a technical discussion of the value of milk as a food for infants and adults, and declared that in all his experience of twenty years he had never found a case where Hebe had been fed to a baby. He declared that Hebe was a healthful food, and criticised condensed milk as a food for infants, saying that while it was easy to digest it was not a proper food for babies. In fact, he declared, milk is not a perfect food and should not be used exclusively for infants and children.

Milk Not a Perfect Food

"Milk is not a perfect food and should not be used exclusively for infants and children," said Dr. S. H. Brennemann, of the Chicago Children's Hospital. "Children that have come under my observation have been getting too much rather than too little milk, and this, together with insufficient attention paid to the general rules of sanitation and physical exercise, fresh air, and the like, have brought about all sorts of troubles that could easily have been avoided."

"In my judgment the worst possible infant food is condensed milk and the unfortunate part of it is that fully 25 per cent of the babies of the country are raised on condensed milk, and wrongfully raised. There is about 50 per cent sugar in condensed milk, which results harmfully to the health of the child."

Laboratory experiments on white rats will not show the value of milk for infants, according to Dr. A. S. Carlson, head of the Department of Physiology of the University of Chicago. What will affect the white rat, he said, may

have an entirely different reaction on the human body, and no great scientific question can be settled by one man or in one laboratory.

Proteins and vitamins entered actively into the hearing when Dr. Casimir Funk, of New York, who formulated the vitamin theory of nutrition, appeared before the committee. Despite the fact that filled milk is deficient in vitamin A which is found in the butter fat removed when the milk is skimmed, the witness insisted that filled milk, nevertheless, is a valuable food and no law should be put through Congress which would make it impossible to use it.

Dr. Funk said that while he would not recommend filled milk as a food for infants, although it probably would not injure them if used for a time, neither would he recommend any condensed milk containing sugar, or evaporated milk. He intimated there was only one milk fit for babies, and that was mother's milk. He was of the opinion that there is no reason for stopping the use of filled milk, which is made of skimmed milk and vegetable oil, for cooking and baking, as is proposed in the Voigt bill, declaring that while skimmed milk is not a complete food, still it is a good food.

Dr. Funk condemned the school of dietetics which has taken the position that filled milk is harmful and should be prohibited, declaring that these opinions were based upon experiments made on rats which had never been attempted on human beings. If filled milk is taken off the market there are a number of other foods such as white bread, rice, macaroni, etc., which are deficient in vitamins and should also be taken off the market. Further, if any legislation is to be undertaken to prevent the use of milk compounds for babies, all milk, including condensed milk containing sugar, and evaporated milk should be included in the measure.

Dr. William E. Ramsey, Perth Amboy, N. J., a well known industrial physician, and nurses testifying before the sub-committee declared that they had never seen any cases where the women, even among the ignorant foreign population, were feeding their babies on Hebe or other filled milk. Considerable of the opposition to the use of filled milk arose from the fact that while the label bore a statement that it was not to be used for infant feeding ignorant people and foreigners could not read the label. The witnesses for the filled milk people pointed out that while the condensed milk bore long directions for the use of such milk in feeding babies, still if the people referred to could not read the directions on the filled milk there was no reason why they should be able to read them on the condensed milk.

Filled Milk Not Deleterious

Even Dr. E. V. McCollum, of Johns Hopkins Hospital, one of the star witnesses for the proponents of the Voigt

bill, admitted when he appeared before the subcommittee that filled milk is not deleterious, but is a healthful product if used in combination with other foods so that it would not interfere with a satisfactory diet. The chief difficulty with diet in this country, he said, is not that products are used that are not fit articles for consumption but that there is a lack of balance. Milk should be used to a great extent, and the use of a substitute for milk (filled milk) does not meet this need.

Dr. McCollum admitted that while the chief difference between whole milk and skimmed milk is the loss of Vitamin A, that there is no definite knowledge yet as to the quantities of Vitamin A needed for children or adults, although it has been ascertained that an adult needs less than an infant. There is no harm in giving children milk compounds, he said, provided they are not used as a substitute for whole milk, nor is there objection to the use of filled milk by bakers.

Filled Milk Benefits Dairy Industry

A strong argument in favor of filled milk was presented by Dr. Eugene A. Aggers, of Columbia University, who opposed the pending bill and declared that filled milk makes a real economic contribution to the country and provides a use for large quantities of a product — skimmed milk — which would otherwise be wasted.

The dairy interests should not feel that the milk compound manufacturers will prove harmful to their industry, he said, but that it is a distinct contribution to the benefit of the dairymen by offering an outlet for a large production of skimmed milk, while at the same time there will be a broader use made of vegetable oils.

Dr. Aggers told the subcommittee that a ten-cent can of filled milk has been found to have the food value of a dozen eggs or of a pound of beef. But little whole milk is used in cooking or baking today, he said, and filled milk can well be used for those purposes.

Filled milk cannot be considered a competitor of condensed or evaporated milk, he said, but should be dealt with as supplementing those products. It would be impossible for the milk compound industry to thrive if there was a fraud upon the public.

George Grindrod, chemist for the Carnation Milk Products Company, appeared before the subcommittee to discuss the manufacture of milk compounds. Both evaporated and filled milk are thoroughly sterilized, he said, and there is no possibility of either carrying disease germs. The coconut oil used in the latter is rendered absolutely sterile and pure. It is not necessary to use coconut oil, he told the committee, although that product is generally used at the present time; peanut, cottonseed and other vegetable oils could be used as well.

Women Testify

Milk compounds play an important part in the kitchen machinery of the country, according to women appearing before the subcommittee. Mrs. Marion H. Beal, of Chicago, declared that poor people who cannot afford to buy whole milk must use either milk compounds or water, and the milk compounds are best. The various milk compounds now on the market, bearing a warning that they should not be used for infant feeding, are not used for babies, according to Mrs. Grace Viall Gray, of the Iowa State University, but are used to a large and increasing extent in cooking. The average housewife, said Mrs. Gray, cannot afford to buy whole milk for baking or cooking, and so, uses milk compounds and lard or other vegetable fats. She characterized as unfounded the charge that women did not read the labels on cans and so fed milk compounds to their babies, pointing out that large quantities of infant foods are on the market and must be used in accordance with directions printed on the container in small type. If women didn't read the labels, she said, they could not use such products.

Self-Interest in Bill Charged

The passing of charges of self-interest marked the final hours of the hearing, when Paul R. McKee, secretary of the Carnation company, introduced a photostatic copy of a letter alleged to have been written by Walter Engles, manager of the legal department of the Borden Condensed Milk Company, to R. W. Balderson, president of the Interstate Milk Producing Association, in which the writer referred to a draft of a bill inclosed, which could be used in connection with legislation in Pennsylvania to prevent the manufacture and sale of milk compounds in that State. He also said that the representatives of the Borden company were in close touch with Maryland officials when filled milk legislation was under consideration in that State.

Mr. McKee also charged the National Milk Producers' Association with having attempted to influence the public in favor of the bill, declaring that in a circular recently issued by that organization a list of States which have barred the sale of filled milk was given, in which Oregon, Florida and Connecticut were listed although those States, he said, were without any such laws as claimed by the milk producers.

He asserted that if the Voigt bill is to be passed by Congress it should be amended so as to include all milk compounds, including condensed milk mixed with sugar. He charged discrimination against his company, and told the subcommittee that prohibitory legislation is not the right way to deal with the matter, and advocated regulation and punishment of any person attempting to sell a milk compound as any other product.

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Flat denial of the charges made by Mr. Urion and reiterated by Mr. McKee was made by John D. Miller, representative of the Dairymen's League, who called upon the two previous witnesses either to prove or retract their allegation. He predicted that the matter would never reach the Federal Trade Commission, as had been intimated by Mr. Urion.

The dairy interests are united in their stand against filled milk, he continued. This business does not afford an outlet for the skimmed milk producer, and, if products containing skimmed milk and vegetable oil are placed on the market in such quantities as to be a menace to the dairy interests, the people he represented were in favor of preventing their sale.

As brought out at the hearing, the

gist of the whole question is not whether milk compounds are a proper article for human consumption, but whether the sale of such compounds is going to lessen the profits of the dairy industry. At no time during the hearing was there any direct charge that filled milk could not be used for human consumption; in fact, several witnesses, among them persons whom the filled milk people had reason to fear would take an opposite stand, had declared that filled milk could be used for cooking and in many other ways.

There was also an absence of testimony backing up the charges that filled milk was being used for infant feeding. The only concrete cases cited were two referred to by a witness for

the Hebe company, who said that the company had received photographs of two babies, one offered for advertising purposes, and had written to their mothers advising that the children be given whole milk and pointing out that Hebe was not intended for infant feeding.

The proponents of the Voigt bill failed to make good the charges on which the measure was based, and the subcommittee is now left with a mass of testimony to sift before it can make its report to the full committee. This testimony, if the charges of self-interest which were passed back and forth are ignored, consists chiefly of an argument as to whether filled milk is fit, not for infant feeding, but for culinary purposes.

Butter Standard Bill Favorably Reported

A FAVORABLE report on the butter standard bill has been submitted to the House of Representatives by the Committee on Agriculture, of which Congressman Haugen, of Iowa, author of the measure, is chairman. The bill provides that butter shall be understood to be "the food product usually known as butter, and which is made exclusively from milk or cream or both, with or without common salt, and with or without additional coloring matter, and containing not less than 80 per centum by weight of milk fat."

Several slight changes were made by the committee, among them an amendment providing that the standard set up in the measure shall be for the enforcement of the Food and Drugs Act only. It also cut out the provision prohibiting more than 16 per cent of water, it being felt inadvisable at this time to enact any legislation providing for a double standard. The Bureau of Internal Revenue in assessing taxes on adulterated butter uses the 16 per cent moisture as its standard and will not be affected by this legislation. It is pointed out that the bill in no way affects or deals with oleomargarine, but is confined to butter exclusively.

Requirements of Bill

"It is not now deemed advisable to enact the double standard, the 80 per cent butter-fat and the maximum 16 per cent of water for the enforcement of the Food and Drugs Act," states the committee in its report. "It will naturally follow, however, that if the bill requires butter to contain 80 per cent of butter-fat to come within the requirements of the food and drugs act, and there is added about 4 per cent salt and casein, which is the usual amount, in addition, a small amount of coloring, it cannot contain over 16 per cent of moisture; besides, butter containing less than 16 per cent moisture is seized by the Bureau of Internal Revenue as adulterated butter and taxed as such, while butter

containing less than 80 per cent of butter fat, if this bill is enacted, will be held in violation of the food and drugs act."

The committee, in its report, lists the regulations of the various States dealing with butter and shows the standards of the more important foreign countries. It is shown that the Department of Agriculture has promulgated definitions and standards for various classes of food products, which are the department's interpretation of the food and drug law and its requirements, but which have not had the force and effect of law and have made difficult the enforcement of the food and drug act.

Official Butterfat Standard

"In the case of butter, a standard requiring 82 1-2 per cent butter fat was determined upon by the joint committee on definitions and standards, approved by the two associations represented, and in turn approved and promulgated by the Secretary of Agriculture a number of years ago as a butter standard. This was soon found to be an impractical standard and unenforceable, being out of line with the existing custom in the trade, which is almost universally on the basis of 80 per cent butter fat. As a result, the department announced that it would not attempt to enforce the standard of 82 1-2 per cent butter fat but would require 80 per cent as the butter fat standard. This change, however, has never been formally promulgated because this would first require action by the joint committee on definitions and standards and the associations represented thereon.

Massachusetts to Enforce Standard

"A number of States have adopted by statute or by virtue of the authority vested in the State commissioner, the impractical standard of 82 1-2 per cent butter fat for butter, but practically none of them attempt to enforce this standard. The State of Massachusetts, however, has recently passed a law adopting Federal standards as the

standards to be observed in the State of Massachusetts in enforcing that State's food and drugs act, and the commissioner, it was stated before the committee, has announced that he will try to enforce the impractical standard of 82 1-2 per cent butter fat, on the theory that if it is a bad standard the quickest way to get rid of it is by trying to enforce it; regardless of the fact that it is not enforced elsewhere. This will result in the seizure of butter containing less than 82 1-2 per cent butter fat shipped into Massachusetts, and expense and inconvenience to the maker, until the matter has been determined by the State courts.

"If the Federal standard is changed the State standard will automatically be changed to correspond by virtue of the law of Massachusetts and other States. It will readily be seen, however, that considerable time would be required, and some difficulty experienced, to formally promulgate a change of the Federal standard for butter because, before this can be done, the change must be recommended by the joint committee on definitions and standards, in which standards originate, approved by both the associations represented thereon, and approved and promulgated by the Secretary of Agriculture, which would be impossible to have accomplished within 30 days, necessary in order to take care of the emergency.

"If the bill is passed it will do away with the impracticable and unenforceable 82 1-2 per cent butter fat standard and the matter of a Federal standard for butter, which has been under discussion for years, will be finally and definitely determined on the basis of 80 per cent butter fat requirement, the butter fat standard agreed to and recommended by the Department of Agriculture, and representatives of the industry appearing before the committee and the standard universally followed by the trade in this and practically every country."

New Bread Standards Prepared

Committee on Definitions and Standards Announces Standards to be Studied by Those Affected

STANDARDS for bread, to be adopted by Federal and State officials in enforcing food laws, have been prepared by the Joint Committee on Definitions and Standards of the Department of Agriculture and submitted to Secretary Wallace for his approval. The standards recommended by the Joint Committee will not become effective under the Federal Food and Drugs Act until they have been formally adopted and published as a food inspection decision by the Secretary of Agriculture, nor will they become effective under State food laws until formally adopted or acted upon by the authorized State representatives. The standards have been announced by the joint committee in advance of their formal adoption in order that they may be studied by those affected and that no hardship may be worked upon the industry. The text of the recommendation made by the committee is as follows:

Bread is the sound product made by baking a dough consisting of a leavened or unleavened mixture of ground grain or other clean, sound, edible farinaceous substance, with potable water, and with or without the addition of other edible substances. In the United States the name "bread," unqualified, is understood to mean wheat bread, or white bread.

Wheat bread dough, or white bread dough, is the dough consisting of a leavened and kneaded mixture of flour, potable water, edible fat or oil, sugar and, or other fermentable carbohydrate substance, salt and yeast, with or without the addition of milk or a milk product, of diastatic and, or proteolytic ferments, and of such limited amounts of unobjectionable salts as serve solely as yeast nutrients,* and with or without the substitution of not more than three per cent of the flour ingredient by some other edible farinaceous substance.

Wheat bread or white bread, is the bread obtained by baking wheat bread dough in the form of a loaf or of rolls or other units smaller than a loaf. It contains, one hour or more after baking, not more than thirty-eight per cent of moisture, as determined upon the entire loaf or other unit.

Milk bread is the bread obtained by baking a wheat bread dough in which not less than one-third of the water ingredient has been replaced by milk or its equivalent. It conforms to the moisture limitation for wheat bread.

Rye bread is the bread obtained by baking a dough which differs from wheat bread dough in that not less than one-third of the flour ingredient has been replaced by rye flour. It conforms to the moisture limitation

for wheat bread.

Raisin bread is the bread obtained by baking wheat bread dough, to which have been added sound raisins in quantity equivalent to at least three ounces for each pound of the baked product and which may contain proportions of sweetening and shortening ingredients greater than those commonly used in wheat bread dough.

Brown bread, or Boston brown bread, is made from rye and corn meals, with or without flour, whole-wheat flour, or rye flour, with molasses, and in which chemical leavening agents, with or without sour milk, are commonly substituted for yeast.

In some localities the name brown bread is used to designate a bread obtained by baking a dough which differs from wheat bread dough in that a portion of the flour ingredient has been replaced by whole-wheat flour.

Comparison of Powdered and Evaporated Milk

Editor The American Food Journal:

Your issue of July contains on page 18 an article on "Commercial Future of Powdered Milk." It is legitimate to criticize omissions as well as commissions in a statement. To one who has been familiar with the use of powdered milk preparations in a broad way, a curious omission is to be noted. Everywhere the comparison is made between powdered milk and natural fluid milk. Now the real comparison and the initial competition is between powdered milk and evaporated milk. This was evident in every relief kitchen in Europe in which both were employed and was equally evident in the accounting sheets of the relief organizations.

From the standpoint of the consumer, powdered milk is compared with evaporated milk on the basis of price, flavor, and solubility of the powdered product as contrasted with dilution of the evaporated product. From the standpoint of production must be contrasted for the two preparations factors of cost of packing, fuel and freight charges. To the trader is added the additional factor that powdered milk presumably remains unaltered, whereas evaporated milk, especially in a warm climate, tends to develop physical and chemical changes of which the nature is not yet fully understood. In the experience of the writer, the time is largely passed when the purchaser of a concentrated preparation of milk compares the article with fresh fluid milk. What the consumer does do is to compare dried milk with evaporated milk.

A. E. TAYLOR,

Food Research Institute, Stanford University.

Co-Operation Makes Food and Drug Laws More Effective

Enforcement of the Federal food and drugs act, State food and drug laws, and municipal regulations has been made much easier and more effective because of the co-operation brought about by the United States Department of Agriculture. The Bureau of Chemistry, of the department, through W. S. Frisbie, in charge of the Office of Co-operation, established several years ago, keeps in personal touch with the various sectional organizations, State officials, and many of the men in charge of administering city food and drug regulations. Although only appointed to this office a few months ago, this "contact" man has already visited more than half of the State officials and will complete the whole circuit before the end of the year.

As a result of this close relationship the eyes of the law are multiplied. The States, cities, and the Department of Agriculture exchange valuable information, and now most of the State inspectors carry authorizations from the Secretary of Agriculture to collect samples for the department, and are, therefore, participants in the enforcement of the national food and drug law.

Another improvement being brought about is the standardization of rules and regulations, which is welcomed not only by the enforcement authorities, but also by the manufacturers. This plan of uniformity is being fostered also by the Association of Food, Drug and Dairy Officials as well as by several of the smaller organizations of these officials. The formation of these smaller organizations by groups of neighboring states is looked upon as a very favorable means of promoting co-operation, especially between the states and cities who are members.

Seven group associations have been formed, and now every State is a member of one of them. The department is always represented at the meetings and many city officials attend.

Not only is it now easier to collect information on violations of the laws, but more study of food and drug problems is made possible as the laboratories of the Bureau of Chemistry at Washington and at the different stations throughout the country may be used by State and city officials.

Meat Packers' Convention in Chicago October 9

The annual convention of the Institute of American Meat Packers, whose membership comprises more than 200 of the leading packing companies in the United States and Canada, will be held in Chicago at the Hotel Drake, beginning October 9. The attendance at this convention will be made up of officials and representatives of packing plants located in almost every state of the Union.

*The propriety of the use of minute amounts of oxidizing agents as enzyme activators is reserved for future consideration and without prejudice.

Invertase Process of Manufacturing Sugar

A Description in Detail of the Methods Discovered by the United States Bureau of Chemistry

By J. K. DALE and C. S. HUDSON
U. S. Bureau of Chemistry

PURE sugar-cane sirup is a wholesome and delicious food product.

A more extensive consumption and a larger production would react to the benefit of both the consumer and the producer. However, the tendency of sugar-cane sirup to crystallize and ferment has been an obstacle to extending its marketable territory, and hence has curtailed production. Sugar-cane sirup if evaporated too thick will crystallize, while, on the other hand, a thin sirup is very likely to ferment in warm weather, unless it has been packed with proper sterilization in air-tight containers. Marketing in bulk is impossible except during cool weather, and cold storage warehousing must be resorted to if cane sirup is to be held in barrels any length of time during warm weather.

A thick sugar sirup will not ferment as readily as a thin one. Experiments have shown that sugar cane sirup of a density of 42 deg. Baume (22 to 23 per cent water) does not readily ferment in warm weather. Ordinarily, however, a sugar cane sirup containing as little as 22 per cent water will crystallize almost solid. The problem, therefore, of making cane sirup of such characteristics that it can be transported, stored and marketed in bulk throughout the year develops into a problem of making a sirup that will not crystallize appreciably when evaporated to a water content of approximately 22 per cent. It is equally important for sirup makers who wish to can their sirup to be sure that it will not sugar in the cans. Except for the objectionable sugaring, which is frequently experienced in ordinary practice, sirup that has been properly sterilized during canning will keep well at customary sirup density (28 to 30 per cent water).

Inversion a Frequent Reaction in Nature

The sweetness of cane juice is due to cane sugar (chemically known as sucrose) and invert sugar. The former, sucrose, is present in very much larger amounts than the latter, but equal weights of invert sugar and sucrose have practically the same degree of sweetness. Sucrose crystallizes, or separates out from solution, very readily, while invert sugar does not so readily crystallize. By decreasing the proportion of sucrose in cane juice and increasing proportionately the amount of invert sugar, the sweetness

THE numerous requests for further information elicited from readers of THE AMERICAN FOOD JOURNAL, by the publication in the March issue of a brief report of the rich, heavy sirup possible by use of the invertase process of manufacture, as set forth by the Bureau of Chemistry, have led to the publication of the accompanying article by J. K. Dale and C. S. Hudson, in which the process is explained in detail for the benefit of manufacturers desirous of employing this new method of making sirup.

Invertase could not until recently be purchased in quantity on the market, but this season a concentrated and standardized invertase preparation is available for all cane sirup producers who may wish to use it.

will not be diminished, while the tendency of the finished sirup to undergo crystallization will be greatly lessened. The process of transforming sucrose into invert sugar is called inversion and is one of the most frequently occurring chemical reactions taking place in nature. A good example of this process is the manufacture of honey by bees. The sugar of honey consists principally of invert sugar, while it is mainly sucrose that the bees collect from plants and flowers.

Transformation of sucrose into invert sugar on a large scale can be brought about in several ways: By a very long boiling with water, by boiling with acids, or by the action of an extract obtained from yeast which is called invertase. For the purpose of manufacturing a heavy bodied sugar-cane sirup that will not crystallize, a partial transformation or inversion of the sucrose into invert sugar can readily and easily be accomplished by the use of a little yeast extract, or, as it is generally called, invertase.

Invertase Prepared From Yeast

Invertase is a substance chemically classified as an enzyme. The cheapest and most available material from which to prepare invertase is yeast. Brewer's yeast, obtained as a by-product of the manufacture of cereal beverages, furnishes a cheap source of supply for the preparation of this en-

zyme. Invertase as it is used to invert sugar in the manufacture of cane sirup is a brownish colored liquid with a peculiar though not disagreeable taste. On first appearance it may seem that this liquid, when added to cane juice, would affect the flavor of the finished sirup, but this is not the case, as it is necessary to use such a small amount of this yeast extract that the pleasant flavor of the finished product is in no way affected.

The manufacture of a sugar cane sirup that will not crystallize, using invertase as the inverting agent, necessitates evaporation of the cane juice to sirup in two stages. The juice is first evaporated to a semi-sirup and the invertase is then added. Invertase does not act instantaneously in transforming sucrose into invert sugar, but several hours must be allowed for this process to take place. After sufficient of the sucrose has been transformed into invert sugar, the semi-sirup is evaporated to finished sirup. The above is the principal innovation in the manufacturing process. Instead of cooking the juice directly to sirup, as is usually done, there must be a break in the evaporation, at which point the invertase is added and then given a sufficient length of time to perform its work of transforming sucrose into invert sugar, before the evaporation can be finished.

Equipment Needed for the Invertase Process

Since sirup made by this process must be evaporated in two stages, for continuous operation two evaporators should be used. The evaporators may be of any of the usual types, though it is desirable when steam is used that the second or finishing evaporator be of the non-continuous type so that a definite amount of the semi-sirup can be evaporated to finished sirup, for thus a more uniform product can be obtained. The capacity of the juice evaporator will, of course, depend upon the amount of cane it is planned to grind per day. Since the evaporation is approximately two-thirds complete at 25 degrees Baume, for continuous operation the capacity of the finishing evaporator need be only about one-half that of the juice evaporator. Two tanks for treatment of the semi-sirup with invertase are also essential. The necessary size of the tanks can be estimated from the following data. In the operation of a si-

rup plant employing the invertase method herein described, it was found convenient to allow 12 hours for the inverting time; that is to say, 12 hours from the time the invertase was added to the semi-sirup until commencing its final evaporation to sirup. Ten tons of cane will give about 1,500 gallons of juice. This amount of juice will make 450 gallons of semi-sirup of 25 degrees Baume density and this in turn will make 220 gallons of sirup of 42 degrees Baume measures at 60 deg. Fahrenheit. For a sirup plant in which it is planned to grind 10 tons of cane per day of 12 hours, two tanks of a capacity of at least 500 gallons each should be provided. The above suggested equipment is planned on the assumption that the sirup plant will operate approximately 12 hours a day, shutting down each night for approximately the same length of time. The procedure would then be to fill one tank each day with semi-sirup from the first evaporator, add the invertase at the time of shutting down, then the next day evaporate this first tank of semi-sirup to a finished sirup, using the second evaporator. While this first tank of semi-sirup is being evaporated to finished sirup in the second evaporator, the first evaporator would be evaporating mill juice to semi-sirup and discharging it into the other tank. Thus a continuous operation would be maintained, one tank being filled each day with semi-sirup and one tank being emptied each day. One evaporator would be in constant use evaporating juice to semi-sirup, and the other evaporator would be in constant use evaporating the semi-sirup made the previous day to finished sirup. By this procedure each tank of semi-sirup would stand over night, thus giving a sufficient period for the action of the invertase. Of course, the first evaporator would be piped to discharge into either tank, and each tank would be piped to discharge into the second evaporator.

Directions for Operation

The following directions for operation are suggested, as they have been found to give satisfactory results in actual practice. Evaporate the cane juice from the mill or clarifiers as rapidly as possible, but do not carry the evaporation farther than to a density of 20 degrees Baume.* Run this semi-sirup into a tank large enough to hold the entire day's output of semi-sirup. At the end of the day's run observe the temperature of the semi-sirup in the tank. If the temperature is above 140 degrees Fahrenheit, allow the liquor to cool to this temperature. When the temperature has dropped to 140 degrees Fahrenheit add the

*By this should be understood 20 degrees Baume when the measurement is made on the boiling hot semi-sirup. If the measurement is made on the cold semi-sirup (at about 60 degrees Fahrenheit) the Baume spindle should read about 25 degrees Fahrenheit. At 130 to 140 degrees Fahrenheit, the temperature at which the invertase should be added, the semi-sirup should test 23 degrees Baume.

concentrated invertase in the proportion of 25 cubic centimeters of invertase for each 100 gallons of semi-sirup in the tank. Stir well and cover the tank. Allow this tank of semi-sirup with the added invertase to stand all night (12 hours) and the next day evaporate to sirup as rapidly as possible. If it is intended to market the sirup in bulk, it should have a density of at least 42 degrees Baume when measured after it has cooled to atmospheric temperature. This means that the sirup should be cooked to a Baume reading of at least 37 degrees when the measurement is made on a sample of the boiling hot sirup taken directly from the evaporator. These directions should be followed as closely as possible, but SLIGHT variations will not materially affect the result. For instance, the recommended density of 20 degrees Baume (at boiling temperature) should be taken as a standard, but it may be 2 or 3 degrees lower. The temperature of the semi-sirup should preferably be 140 degrees Fahrenheit when the invertase is added, but a range of 5 degrees higher or 10 degrees lower may be allowed.

The choice of 12 hours for the action of the invertase on the semi-sirup is made as being a convenient length of time. An hour or so, more or less, will not greatly affect the result. The method above outlined can be used in both large and small sirup plants.

Invertase Now Available Commercially

As invertase could not until recently be purchased in quantity on the market the Bureau of Chemistry undertook to supply it to all cane sirup producers who wished to try this new method of making sirup. This season, however, a concentrated and standardized invertase preparation is available on the market for all cane sirup producers who may wish to use it, and the bureau is not, therefore, preparing it for distribution. The use of this commercial invertase at its present price will increase the cost of making the sirup only one-half a cent (or slightly more) per gallon. Since this invertase is a highly concentrated product it is used in extremely small amount, one pound being sufficient for 600 to 800 gallons of finished sirup. Since the concentrated invertase is added in such small amount it should be measured as accurately as possible. Small bottles, glass vials or cylinders graduated in cubic centimeters are recommended for measuring the invertase. These can be obtained from any local drug store.

It has been found that 25 cubic centimeters of the concentrated invertase (varying from 20 to 30 cubic centimeters) are usually sufficient for a 100 gallon lot of semi-sirup, instead of the three pints of less concentrated invertase called for in last year's circular. The concentrated invertase should be thoroughly shaken before measuring it out. After measuring out the concentrated invertase, it should be

mixed with a small amount of water and then added to the semi-sirup. The exact amount of invertase required will, however, vary slightly depending on the quality of the juice and time required for evaporation to semi-sirup. Unless a polariscope is available for testing the purity of the semi-sirup, before and after the invertase has performed its work, the only way to judge whether too little or too much invertase has been used is to observe the quality of the finished sirup. If the color and flavor are not appreciably different from that obtained when no invertase at all has been used in making previous lots, and if the sirup does not sugar, the amount of invertase used may be considered the proper quantity. The sirup may be tested for its tendency to sugar by cooling a small sample (about a quart) until it is only luke-warm, adding a very small amount of granulated sugar (half a teaspoonful) and stirring occasionally. If no sugar in excess of that added appears after standing about two days, it may be considered that the sirup will not sugar. If the color and flavor are appreciably different from that of sirup of the same thickness or density made without invertase, use slightly less invertase; if the sirup should show a tendency to sugar, use slightly more invertase for the next lot. It is believed that with very little trouble each sirup maker will be able to decide exactly what the right amount of invertase in his particular case will be, should it be found necessary to vary from the amount above mentioned.

Invertase Sirup for Canning

We are advising this year that the sirup be cooked to a final density of 34 degrees to 35 degrees Baume (measured boiling hot) for canning. It is believed that this is the best sirup density, everything considered, and that a product of better color and flavor may thus be obtained than if it is attempted to boil the sirup very much thicker. Under these circumstances, the use of invertase keeps the sirup from sugaring in the cans, and the canning keeps it from fermenting. Before going to the expense of canning sirup, however, the producer should satisfy himself that he will be able to dispose of his product profitably. In case it is desirable to market the sirup in barrels, it is necessary, of course, to boil it to a somewhat heavier density (at least 37 degrees Baume, measured boiling hot) to minimize the danger of fermentation.

Trial of the Method

The process of making cane sirup as described above is naturally a little more troublesome and expensive than the present very simple method employed in our Southern States with the exception of Louisiana. However, the advantages that will result from the manufacture of a better product, one that will not readily crystallize

or ferment, should far more than counter-balance the additional trouble and expense involved. These advantages should greatly increase the marketing possibilities of the sirup.

May Be Easily Tried

The invertase method may be easily tried on a small scale at a negligible expense. For the purpose of making a small trial run, it is only necessary to have one or more clean barrels in which semi-sirup may be placed. Any other suitable container may be used. Large mills will probably already have extra tanks or other containers which can be used. An appropriate amount of semi-sirup is prepared and placed in the barrels or

other containers, the temperature is adjusted to as near 140 degrees Fahrenheit as possible, the proper amount of invertase is added and the semi-sirup after thorough mixing, is allowed to stand over night (about 12 hours). The regular process used by the sirup maker is then interrupted for a sufficient length of time the next day to evaporate the semi-sirup to finished sirup. If, however, this method is adopted as a permanent process, two evaporators must, of course, be used and two additional tanks provided as already indicated.

The Bureau of Chemistry will supply, upon request, the names of firms making invertase.

The Time to Buy Paper Boxes

By WILLIAM W. BAIRD

Secretary National Paper Box Manufacturers Association

SOMETIMES we hear strong language from users of paper boxes, expressing the wish that they "could get along without boxes—they are a nuisance—uneconomic and unnecessary—and when we want them in a hurry, we can't get them."

Upon investigation it is invariably found that the last part of the tirade explains the general disgust, "when we want them in a hurry, we can't get them."

Notwithstanding frequent experiences of the kind, the box user very often continues to delay placing his order until a seasonal rush overwhelms him, and then he looks to the box manufacturer to do the impossible. Perhaps the box manufacturer is to blame in many instances, in not explaining to his customer the necessities and peculiarities of the paper box industry.

Practically all set-up boxes are made "to order." Special papers have to be ordered, special sized sheets of board purchased for large runs in order to save the customer money, special printing plates or engravings have to be prepared, before the box manufacturer begins processing the materials. Even in cases where all engravings are prepared, and the boxes have been frequently made before, it may be that the paper is a special shade, and is double coated and highly finished. In the latter case, it needs to be stored in the box manufacturers stock rooms for several weeks before it is in condition to use for printing or engraving, for when the coated surface is not thoroughly dry and "seasoned" it is apt to pick, and spoil the appearance of the work even if it is possible to run it at all.

Many manufacturers have a slack season, when orders are being taken for the next busy period. The box manufacturer will be in a better position to serve his customers promptly and efficiently if orders for future delivery are placed before the slack period begins. Sufficient time will thus be given for ordering all stock,

preparing plates and dies, discussing special brands, trade marks, quantities, etc.

The very natural tendency during the past few months has been to hold back on orders; to order for immediate requirements only. Every indication points to continued improvement in industry, and each branch of industry will surely feel the effect of the general improvement.

In considering immediate purchase of future requirements the following facts are pertinent:

The box manufacturer has taken the loss due to deflation, and has reduced production costs in line with the general trend. Boxboard prices are as low at present as they can reasonably be expected to go. Babson advises buying for future requirements.

The best time to buy boxes is well in advance of requirements, and if the merchant or manufacturer has not already done so for the coming busy season, now is the time to buy boxes.

Treasury Decision on Non-Beverage Alcohol Rescinded

The secretary of the National Manufacturers of Soda Water Flavors, Thomas J. Hickey, Chicago, has informed the trade that the recent Treasury decision, which would have required all permit holders using non-beverage alcohol to double the amount of their bonds, has been suspended and that a new regulation satisfactory to the trades will be drawn.

In effect the rescinded decision would have required permit holders to put up a bond just double the amount of the bond previously required, says Mr. Hickey. It was also provided that if any permit holder violated the Prohibition Law or any of the regulations issued by the Prohibition department, he should forfeit 25 per cent of the full face amount of his bond, even though there was not any loss sustained by the Government on account of such violation.

Food Commissioner Denounces Stale Stocks of Cereals

Food Commissioner James Foust of Pennsylvania says in an official statement that the competition of breakfast foods is being overdone and that stale products are multiplying at an alarming and perilous rate.

"There is no criticism," he says, "of the food quality of the average breakfast cereal when it is sold in a fresh condition to the consumer, but it is well known to all dealers that these preparations are very liable to insect attack unless the greatest care be taken to keep the stock fresh and to store it in places where the danger of such attack is least. Past examinations by the bureau have revealed numerous cases in which the contents of packages were simply alive with vermin and cob-webbed with the tissues woven by the insect larvae they contained."

Commissioner Foust points out that a comparison by wholesalers of the 100 or 150 brands of such foods on sale in the State will show that in reality there are only 12 to 15 types of breakfast foods that differ distinctly. Communities are canvassed by agents presenting samples of some new breakfast food, taking orders and turning them over to the local grocer, who adds this new name to his stock, despite the fact that his shelves are already crowded with the one hundred other brands.

"The difficulties of the retailer under these conditions are recognized," says Commissioner Foust, "but the rights of the consumer for protection against this evil cannot be overlooked. The director wants every retailer handling cereal goods to understand that the retail stocks in every part of the State are to be thoroughly sampled and sent to State College for a scientific examination and that whenever contamination by bugs, slugs and the like is detected, prosecutions will be instituted in every case and vigorously pressed. If the retailers aided by the manufacturers and jobbers do not get rid of this evil, it is possible that the people may feel it necessary to adopt a remedy proposed in other States against the sale of stale stocks of perishable goods, that of requiring that the package shall bear a stamp indicating the date of manufacture of the goods."

Germany Barbers for Argentine Meat

Through war losses and the compulsory deliveries of live stock to the Allies, Germany's meat larder is today so low that great quantities of frozen meats must be imported if the lowered standard of living is not to decline still further, says a report of the Foodstuffs Division of the Department of Commerce. Depreciated currency makes it impossible for a majority of the population to pay the prices of imported meats. A well-known German company has just completed a contract with the Argentine government which provides for the delivery of 50,000 tons of mutton and 60,000 tons of beef, annually, to be paid for in German goods.

BOOK REVIEWS

Story of Nutrition Study and Discussion of Vitamines

Vital Factors of Foods. Vitamines and Nutrition. By Carleton Ellis, S.B., F.C.S., Consulting Chemist, and Annie Louise Macleod, Ph.D., Associate Professor of Chemistry, Vassar College. D. Van Nostrand Company, New York.

Students and nutrition workers will welcome this comprehensive and exhaustive history of the progress made in developing the technique of nutrition studies.

The authors trace the very beginnings of the idea that laboratory work in estimating the value of any food-stuff, or in testing the adequacy of any diet should be checked by the experimental method. As early as 1881 Lunin enunciated this theory but it was not until the beginning of the present decade that any material progress was made in this line of scientific research.

Dr. Ellis and Professor Macleod give, page by page, accurate and detailed histories of individual accomplishment of the leading authorities in the field.

Outstanding periods of special progress are indicated; the years during which the caloric content of food was thought to be the most important consideration; the controversy over high and low protein; the evolution of the conviction that proteins have varying values; the important time of awakening to the connection between diet and deficiency diseases and the present day illumination in the matter of vitamins, all these are given their rightful and chronological places in the writing of the nutrition tale. Accompanying this unfolding are carefully compiled bibliographies, so that the study is at once a reference book and a discussion of progress.

The second half of the book is largely concerned with a discussion of the vitamins, their distribution, the role played by them in nutrition, "what to eat from the vitamin standpoint," and their relation to the deficiency diseases.

One particularly strong feature of the book is the appendix giving the distribution of vitamins A and B, showing in tabulated form the substance in which each vitamin is found, all the important references to authors who treat of this subject and remarks on the general use of the vitamin in question.

To sum up, this volume may be considered in the light of an encyclopedia of the vitamins.

Opportunity for Women in Food Industry and Other Fields

Women in Chemistry. A Study of Professional Opportunities. Studies in Occupations, Number Four. The Bureau of Vocational Information, New York.

More than 1,000 sources of information have been consulted in compiling this very practical study. The editor has gathered facts as to the varied character and wide scope of the chemist's work, discussing at length the types of positions and the duties of each.

There is a special discussion of the problems met by women in this field, the training requirements, salaries, etc.

The opportunities of industrial research are set forth, as, for example, in the food industry women find recognition of their abilities in baking powder plants, in canning factories, in packing houses, in technological work with sugars, and in bureaus of standards.

In the field of home economics women are making fine records as physiological chemists. To quote:

"The terms dietetics and dietitian have not been standardized and designate now a practical managing housekeeper and again an expert in nutrition. With the growing recognition and knowledge of the scientific aspects of foods, not only in illness but in health, and in awakening interest in proper feeding, there is increasing opportunity for the BIOCHEMIST to be employed as a scientific dietitian in a hospital to work with the doctor on diet cases; in public institutions and schools to plan and direct the purchase and preparation of foods; with boards of education or boards of health to teach nutrition popularly to adults and children; in the extension service of state agricultural colleges and in social agencies."

Opportunities for women chemists in fields other than foods are also described in detail.

Food, Health and Growth

By L. Emmett Holt, M.D., LL.D., President Child Health Organization; formerly professor of diseases of children in the College of Physicians and Surgeons, Columbia University, New York. The Macmillan Company, New York.

Dr. Holt needs no introduction to those interested in foods. A pioneer in the field of preventive medicine, he marches with the times, and today stands in the front rank of those who

preach the gospel of food in its relation to nutrition and growth.

That the subject of food is probably the most pressing world problem, is Dr. Holt's thesis, and he goes on to show how it is challenging public interest as never before in modern times.

After a discussion of all possible forces that may work together to improve the nutrition of the children, which means the nutrition of the race, Dr. Holt says, in part:

"Children may fail to attain normal physical development from many causes * * * some of which reach far back, and the consequences of which can never be overcome * * * In the great majority of cases, however, children are below normal with respect to their nutrition or fail to make progress in health and growth as a result of improper or insufficient food and faulty hygiene."

Calling attention to the easily recognizable symptoms of under-nourishment the author shows how to interpret these danger signals of fatigue, lack of energy, of low weight or subnormal height, as well as of poorly developed muscles and flabby tissues.

The school is, in Dr. Holt's opinion, the logical place in which to give food instruction, but he also emphasizes the point that the old-time teaching of physiology, the mere listing of bones and muscles or abstract discussion of physical processes bore little, if any, practical fruit.

The chapters on the protein, fat and carbohydrate requirements and on the distribution of the calories are clear and, so far as science has advanced, conclusive. That on the vitamins presents practical suggestions for insuring an adequate supply of these food factors.

In closing Dr. Holt discusses the creed of the Child Health Organization which shows how every health movement, if it is to bring permanent results, must be based on popular education.

"To initiate such a program," says the author, "must be the work of the physician; to carry it out must be the task of the school authorities; it can only succeed when backed by an intelligent public opinion."

The present volume will go far toward helping mold that opinion.

Principles of Dietetics, Food and Diets Discussed

Nutrition and Specific Therapy. By Dorothy E. Lane. The Macmillan Company, New York.

Those who are trained to evaluate the literature of dietetics will find in Mrs. Lane's study much that is stim-

ulating and helpful. The author is somewhat of a reactionary but the book is written from the viewpoint of the true scientist, the searcher after truth.

Beginning with a clearly written chapter on the principles of dietetics, Mrs. Lane sketches in this chapter the progress of research up to the present day. One valuable feature is a series of terse statements summing up the most important points in diet planning. For example:

"The entire aim in eating is not a question of obtaining the greatest number of calories; the aim is to obtain the required amount of 'complete protein' to maintain nitrogen equilibrium, a sufficient amount of carbohydrate and fat for heat and energy, a balanced mineral ration for the body's fluids and cells, and for neutralizing waste products, an adequate supply of the three or more vitamins necessary for growth and health and a generous supply of cellulose to create active peristalsis. In other words man cannot live in a single article of food."

The "little knowledge" prevalent in the food field, as in many another, is truly "a dangerous thing." The laity needs information similar to the above far more than dissertations on physiological chemistry.

Another helpful statement in Mrs. Lane's earlier chapters is this:

"The less variety at one meal, the quicker the digestion and the better

for the health; but the greater the variety, the three meals a day considered, the better for the health. Serve as few foods as possible at each meal, but serve generously of these foods and vary each of the three meals a day and the meals of each day of the week if possible. By following this rule the seeker for health will obtain a 'complete protein', sufficient fat and carbohydrate, a balanced mineral supply, an adequate supply of vitamins and a generous proportion of cellulose."

Then follows an equally helpful summary of information concerning the amino acids.

Subsequent chapters consider such questions as Food Preparation, Meat Versus Vegetarianism, Auto-Intoxication, Diet In Common Diseases, Infants' Diets and Vitamins.

Among the most helpful of the discussions is that on reforming the intestinal flora. Sixteen rules are given, and whether we agree with the author or not in her views on vegetarianism, such a summary is very suggestive.

Some of us will take exception to the statements regarding the relative advantages of raw and cooked foods and to some others, but the great value of the book lies not in its expression of individual opinions, but in its scholarly treatment of a subject that is open to so much that is controversial.

Government's Dehydration Work Transferred to Los Angeles

The experimental operations of the Bureau of Chemistry, Department of Agriculture, under the special fund created for work in dehydration of foods, has been consolidated with the Fruit and Vegetable Chemists' Laboratory at Los Angeles, Calif., under the direction of E. M. Chase, chemist in charge. W. A. Noel, Ray Powers, C. R. Gross and P. F. Nichols, who have been conducting work in dehydration at Washington and elsewhere, have been transferred to the Los Angeles station and other experimental stations in dehydration have been discontinued. It is believed that more effective work can be done where the dehydration experts of the Bureau of Chemistry are thus brought together.

Trade Commission Objects to Contract

The Federal Trade Commission has issued an order against the B. S. Pearsall Butter Company, Elgin, Ill., to cease the practice of using exclusive dealing contracts which prevent the purchaser from dealing in the goods, wares, merchandise, supplies or other commodities of a competitor or competitors of the B. S. Pearsall Butter Company, or in competing commodities. The company manufactures and distributes oleomargarine, butter and similar products.

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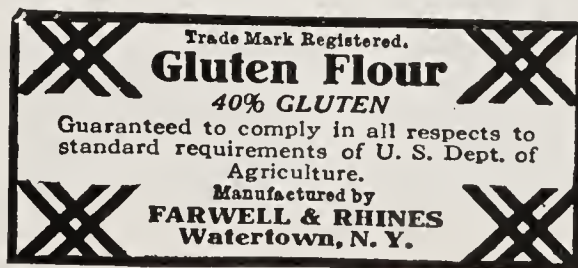
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NEWS OF THE FOOD TRADES

A \$32,500,000 Market for Breakfast Foods

Each year farmers eat 225,000,000 pounds of breakfast foods, worth \$32,500,000, according to a report of the Bureau of Research of The Farm Journal after an extensive investigation just completed among its subscribers: 95.53 per cent of these farm families eat breakfast foods and average 64.9 packages yearly.

Cooked breakfast foods are somewhat preferred to uncooked foods, especially by the men; 87.35 per cent of the farm families eat cooked foods to 70.23 per cent eating uncooked foods, and 63 per cent of all breakfast food eaten by farmers is cooked foods.

Among the brands of breakfast foods reported, Post Toasties leads in the number of farmers buying and number of packages consumed annually, with Kellogg's Corn Flakes a close second. Cream of Wheat valuation is greatest. Grape Nuts, Shredded Wheat and Quaker Oats are other popular brands with these farmers.

Every year the use of prepared food increases at the expense of unprepared foods, according to 56.1 per cent of these farmers. The principal reasons are "better liked" and "easier to prepare": 38.2 per cent of these farm women also use breakfast foods for other purposes, such as mush, croquettes, cookies, etc., and thereby the use is increasing.

Winter is naturally the big season for cooked breakfast foods while summer leads for the uncooked foods, but quite a large proportion use both foods all the year round. Fruits are very largely used in combination.

Seventy-one and thirty-eight one hundredth per cent of the farmers buy breakfast foods largely from the grocery stores and 34.25 per cent buy mostly from country general stores. Some few buy from other stores or by mail. 5.19 miles is the average distance they travel to the store where they usually buy these goods, but in doing so many pass by other stores where these foods could be bought.

A strong leaning toward "package" goods is noted, 75 per cent of these farmers buy oat meal or rolled oats in packages. The principal reason for the preference for package goods is that they are considered more clean and sanitary. Package goods are also considered "better quality" by a large proportion of the correspondents.

Farmers buy considerable quantities of breakfast foods at a time—they average 9.22 pounds of loose rolled oats, 7.34 pounds of oat meal and 3.13 packages of other breakfast foods. Having an automobile or team at the store, it is no bother to take home a number of packages at a time. Farmers are big eaters, so there's little danger of spoiling before being consumed.

Copies of the complete report will be loaned free to manufacturers and agencies by The Farm Journal.

Recent Patents

The following patents of interest to readers of The American Food Journal recently were issued from the United States Patent Office. Copies thereof may be obtained from R. E. Burnham, patent and trade-mark attorney, Continental Trust Building, Washington, D. C., at the rate of 20 cents each. State number of patent and name of inventor when ordering.

1,420,630. Dried yeast and method of making the same. Arthur W. Hixson, Leonia, N. J.

1,420,661. Food product. Sigmund Luft, Maywood, Ill.

1,420,679. Process and apparatus for dehydrating. Otto Q. Beckworth and Oliver J. Hobson, Chicago, assignors to Anhydrous Food Products Co.

1,420,739. Method of preserving comestibles. Paul W. Petersen, Chicago.

1,420,740. Method of preserving comestibles. Paul W. Petersen, Chicago.

1,421,349. Biscuit cutting and embossing machine. Herbert W. Hole, Willesden Junction, London, England, assignor to Joseph Baker Sons and Perkins Co., White Plains, N. Y.

1,421,560. Machine for breaking cocoa cake or the like. William E. Prescott, London, England, assignor to Joseph Baker & Sons, Limited, same place.

1,421,600. Method of making confections. Clifford P. Speck, Oakland, Cal.

1,421,601. Confection-mold. Clifford P. Speck, Oakland, Cal.

1,421,437. Art of producing cereal beverages. Max Stahl, Chicago, assignor to Wahl-Henius Research Laboratory, same place.

1,422,328. Manufacture of grape sugar. Paul W. Allen, Cedar Rapids, Iowa, assignor to Penick & Ford, Inc.

1,423,014. Nut-salting machine. Mario Peruzzi, Wilkes-Barre, Pa.

1,423,053. Egg-preserving compound. Edward Victorine, Cedar Rapids, Iowa.

1,423,059. Apparatus for washing and cleaning eggs. Colonel J. Williamson, San Francisco, assignor to Williamson Machine Co., same place.

1,423,371. Dough-dividing machine. Thomas S. Vierow, Jersey City, N. Y.

1,423,421. Machine for skinning and coring tomatoes. Hiram R. Harding, Baltimore, Md., assignor to Harding Peeling Machine Co., same place.

Grand Union Tea Company Sells Its Pacific Northwest Stores

The Grand Union Tea Company, New York, owner and operator of tea and coffee stores in the Pacific Northwest, has disposed of its interests to the Union Pacific Tea Company and others. The Grand Union Tea Company was established in Seattle, Wash., about 12 years ago. The company has had as much as \$500,000 invested in the Northwest territory in stock, fixtures and machinery. The company grew until it had stores in Portland, Tacoma, Spokane, Everett, Bellingham, and Yakima. At one time it had chain stores in California.

Cocoa Bean Importers to Standardize Contracts

The Cocoa Bean Importers' Association, Inc., formed during the war to expedite the granting of licenses and to aid the trade, recently met at the Reform Club, 9 South William Street, New York, to formulate a standard form of contract. A committee was appointed to handle the reorganization of the association, the board of directors was increased from seven to nine members. The president of the association is Talmadge P. Delafield and the secretary A. M. Frame.

In a brief address Secretary Frame pointed out that cocoa bean importations in the United States have increased from 246,000 bags valued at \$4,900,000 in 1900 to a total equaling a value of \$30,000,000 in 1922. Every broker, he said, words his contract differently, which is likely to lead to trouble when one buys on one brokers' contract and sells on another, although the terms may be identical. It is doubtful whether all brokers' contracts are legally binding in a court of law. At best most of them are merely a brokers' memorandum.

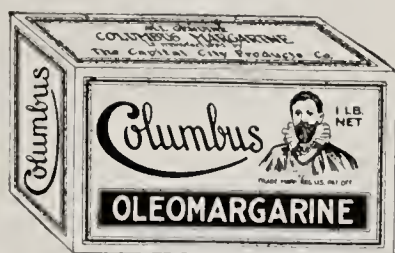
It is to remedy such conditions and other points raised that the committee will formulate a standard contract that will be acceptable here and abroad, said Mr. Frame. The association will also try to arrange for permanent arbitrators with the terms of the contract to be submitted in the dispute without giving the names of parties seeking arbitration.

Syrians Now Supplying European Jam Manufacturers

The ancient Damascus oasis of Syria still bears abundantly and now modern commercial methods are employed in cultivating the fruit trees, which have been blooming there for centuries. Apricots constitute the most important fruit crop. Consul Charles E. Allen, at Damascus, informs the Department of Commerce. The fruit is marketed in four forms—the fresh which is sold locally; apricot paste; dried apricots, and apricot nuts or seeds. Apricot paste is prepared by mashing the fruit to a pulp, straining out the seeds and sun-drying the resultant product on a board until it becomes hard. It then resembles a large sheet of leather and is of sufficient pliability to permit of its being rolled. English and German jam manufacturers are eager to purchase this paste. A cooking oil is pressed from the apricot kernels.

Canned Meats Needed in Czecho-Slovakia

A good market for canned meats now exists in Czecho-Slovakia, where a shortage of meat has caused the Ministry of Public Food Supply to prohibit meat exportations and to favor the importation of canned meats and also frozen beef from Denmark and pork from Argentina. Trade Commissioner Geringer, Prague, has just informed the Department of Commerce.



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British Food Imports Becoming Normal

Trade in foodstuffs with Great Britain is always of great importance, as that country is by far the greatest importer of foodstuffs in Europe and the trend of trade can be looked on as an indicator of the general European situation. In this respect England has more nearly recovered its normal consumption than any other country of Europe, says the Foodstuffs Division of the Department of Commerce.

During the first six months of 1922, as compared with the same period of last year, the outstanding feature is the steady increase in the importation of breadstuffs and the decrease in the imports of meat products. For the first six months of last year England imported only about 76 per cent as much wheat as for the normal pre-war period, but its wheat imports have been steadily increasing, and for the first six months of this year the imports of wheat and flour combined were practically back to the pre-war normal.

On the other hand, the imports of meat products last year were abnormally high, reaching an average of 128 per cent over the pre-war period. This was in part due to the decline in home supplies, which had not fully recovered since the war period. The imports of meat products for the first six months of 1922 were 114 per cent of pre-war consumption, showing a tendency to return to pre-war normal.

The importation of pork products, however, has increased, this year being 28 per cent higher than the pre-war period and considerably higher than last year. But there has been a marked decline in the imports of beef and mutton.

The imports of dairy products are still higher than pre-war, but the increase is made up principally of cheese and

condensed milk. In a sense both of these products are meat substitutes, and the imports are probably affected by very much the same factors as affect meat products, namely, a lessened home production which has not fully recovered from the war period.

It is interesting also to note that the imports of both fresh and dried fruits are still very high, being 55 and 100 per cent, respectively, higher than pre-war imports.

In edible fats England is still importing far more than normal in both lard and vegetable fats. However, there is a corresponding decrease in the imports of lard substitutes and margarin, these two products being largely manufactured in England, due to the enormous increase in its manufacturing capacity in recent years and the vegetable fats are large imported for this purpose.

On the whole, it can be said that food imports in England are rapidly returning to pre-war normal; the imports of breadstuffs steadily increasing, while the imports of meat products are decreasing. In connection with this, it may be noted that the English policy of promoting bread prices is probably stimulating consumption of these foods; the latest price announced is 9.5 pence per 4-pound loaf, being equivalent to 19 cents in American money. Bread is relatively much cheaper in England than in the United States. It has never been satisfactorily explained how the British Isles were able to decrease their imports of grain during the period immediately following the war, the most probable explanation being that there was a considerable increase in the consumption of potatoes and other vegetables which could be produced cheaper at home.

Government to Survey Sugar Production

A monthly survey of production stocks and sales of sugar has been undertaken by the Census Bureau, at the request of the industry. The report will be made one of a series covering the key industries of the United States, which has been undertaken by Secretary of Commerce Hoover with a view to preventing, so far as possible, a recurrence of the business inflation which followed the war and the consequent depression of 1920.

Schedules for the first report, to cover the activities of the sugar industry during the month of July, have already been sent out. They have been addressed to 85 beet sugar producers, 202 cane sugar producers and 20 refiners. The producers will be asked to give figures showing the stock on hand at the beginning of the month, sugar manufactured during the month and stock on hand at the end of the month, together with the total sales made during the month, divided, in the case of cane sugar, into sales to refiners and for direct consumption.

The refiners are asked to show the stock on hand at the beginning of the month; the receipts during the month, both domestic and imported and, in the case of imported, by countries; the amount refined during the month, stock

on hand at the end of the month and

the sales, divided into domestic and export totals.

The reports rendered to the Census Bureau, in accordance with the law, will, of course, be held strictly confidential, and only total figures for the whole industry will be made public. While the bulk of the business is done in six months or less of the year, reports will be required monthly, in order that the statistics of the bureau may be published on that basis.

Plans for the monthly census and the forms of schedules to be used were decided upon following conferences with representatives of the American Sugar Manufacturers' Association, the American Cane Growers' Association and others interested in the industry. The Secretary of Commerce was assured the fullest possible co-operation in securing the statistics and was urged to make the report as complete as possible.

New Flour Base at Philadelphia

The United States Shipping Board has leased to the Merchants' Warehouse Company, Philadelphia, Pa., the Army Supply Base or Quartermaster's Terminal at South Philadelphia. It is proposed to make this terminal a concentration point for export flour. Distribution being made from there to all Atlantic ports as required.

Philadelphia was selected as a central point for flour distribution partly because storage in transit privileges are available which are not possible in other cities on the Atlantic seaboard. It is estimated that delivery of European flour can be made weeks quicker than is possible from present flour storage points in the interior. In addition to flour, the base will handle general cargo as well.

Survey of Food Trade Shows Optimism

Replies to inquiries on the situation of business sent out by the Journal of Commerce, New York, to a large number of wholesale grocers and food manufacturers were striking in their unanimity of viewpoint. Requests for reports on business, which this newspaper has been sending out to various industries, were sent to wholesale grocers, manufacturers and food packers in Boston, Buffalo, Duluth, New Orleans, San Francisco, Spokane and other cities. The replies generally agreed that crops look promising and that there is a waiting market with promise of good prices. There are no financial obstacles in the way of moving these crops, but some apprehension is expressed as to the available labor supply for harvesting. There is a feeling that wages are down to normal and that labor agitation is becoming less pronounced. The railroad strike causes concern over the necessary movement of supplies of merchandise, crops and raw material.

Fall Schedule of National Food Shows

The fall series of National Food Shows, which are held by local associations and the food show department of the National Association of Retail Grocers, according to a recent announcement of the association, will be held this year in New York at the 102d Engineers' Armory, from Oct. 30 to Nov. 11; in Providence, R. I., at the State Armory, from Oct. 2 to 7; and in Grand Rapids, Mich., at the Grand Rapids Armory, Dec. 11 to 16.

In promoting and conducting National food shows, says the association, every effort is put forth to emphasize the fact that they are designed "to promote a better knowledge of good food." Features to visualize this objective are prominently presented. The headquarters of the National Association of Retail Grocers is 416 R. A. Long Building, Kansas City, Mo., secretary, H. E. Balsiger.

Packer of Evaporated Apples Expands

C. C. Hall, Inc., apple packers, 347 Blossom Road, Rochester, N. Y., have leased a part of the Symington Forge plant on University Avenue, Rochester, to add to their packing facilities. The building now occupied by the company on Blossom Road was only purchased and remodeled about seven months ago, but the heavy demand for the company's "tri-color" brand of evaporated apples and the fact that the company has completed negotiations for the absorption of W. H. Packard of Medina, another large packing house, necessitated further expansion. W. H. Packard of this company has become associated with the Hall organization.

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Milk Powder Figures in New Handbook

Booklet of Dairy Statistics Shows Production and Consumption in United States and For- eign Markets

A report consisting of 72 pages of tabulated statistics, covering the production and various market prices of dairy product in the United States and the production and per capita consumption of dairy products in foreign countries, has been compiled by T. R. Pirtle, dairy division of the Department of Agriculture. It is entitled a "Handbook of Dairy Statistics."

The report shows the average yield of milk per year of milk cows in various countries and the average per capita consumption of whole milk and butter and cheese. In a table showing the production and exportation of butter the United States leads in production with 1,648,505,382 pounds produced in 1919, but in exports of butter, Denmark with a production figure of 257,484,000 pounds in 1914, exported 210,984 pounds, compared with the United States exports of only 34,556,485.

The total number of cattle and pure bred cattle of dairy breeds on farms in the United States in 1920, says the report, was 66,810,836, of which 1,981,514 were pure bred cattle and 916,724 pure bred dairy cattle. The total production of milk in the United States, it is pointed out, was 89,657,000,000 pounds in 1920, of which 4.4 per cent was converted into condensed milk and 4.0 per cent into cheese. The net price of milk paid to the farmer in Chicago shows a rise from \$1.11 per 100 lb. paid in 1897 to \$3.49 per 100 lb. paid in 1920.

A table is shown giving the production of condensed and evaporated milk in the United States in 1919, by months. According to these figures in 1919, there were 8,660,785 pounds of whole milk powder produced, 33,076,131 pounds of skim milk powder, 592,070 pounds of cream powder and 17,495,887 pounds of malted milk. There were also 5,278,827 pounds of buttermilk powder, 13,924,836 pounds of dried casein (lactarene) and 6,221,342 pounds of crude milk sugar (lactose).

In the table on cheese production of the United States the figures in which are for 1920, the production of Cheddar cheese from whole milk leads with 242,195,707 pounds, while brick and Munster cheese is second with a production figure of 40,687,832 pounds. The production of Swiss cheese is given as 20,430,000 pounds in 1920. Of this total on Swiss cheese, 14,396,000 pounds were produced by Wisconsin.

The production of condensed and evaporated milk by 630 factories in the United States in 1919 is given at 2,046,879 pounds, while in 1920 it was 1,578,015,000 pounds. In 1920, 23,755,780 pounds were imported and 411,077,982 pounds exported. The total production of evaporated and evaporated buttermilk in 1919 is stated as 22,535,580 pounds and in 1920 it had increased to 32,539,000 pounds. The total production of milk powder in 1920 was 52,227,000 pounds.

The report also gives the dairy production, consumption and a census of

cattle and factories producing dairy products in Argentina, Australia, Austria, British South Africa, Canada, Denmark, Finland, France, Germany, Greece, Hungary, India, Italy, Japan, Netherlands, New Zealand, Norway, Poland, Rumania, Russia, Siberia, Spain, Sweden, Switzerland and the United Kingdom.

Manufacturers Urge Census of Production Instead of Value

The quantity of canned goods produced rather than the value of the output should be made the basis on which future manufacturing censuses should be taken, according to the Illinois Manufacturers' Association, which has submitted this recommendation to Secretary Hoover. The value of an industry's production is now made the basis of census analyses, whereas a more accurate determination of conditions within an industry from year to year could be made from a comparison of the quantity production. The cost of canned goods, for instance, is now considerably greater than before the war, but a true conception of the changes which have occurred in the industry could not be gleaned from a comparison of the value of today's production with that of the pre-war period. A definite conception of these changes, however, could be gathered by comparing the actual number of cans of goods turned out.

Bill to Remit Profiteering Fines

Remittance of fines of upwards of \$100,000 which were levied by the Government against persons convicted of profiteering in food during the war is provided in a bill introduced by Senator Elkins, of West Virginia.

The bill, which is now before the Senate Claims Committee, has received the approval of the Department of Justice. Assistant Attorney-General Lovett has written the committee advising the passage of the bill in view of the fact that the Supreme Court declared void a section of the food control act, under which fines of \$277,000 were imposed. The decision of the court gave convicted persons the right to sue for return of fines paid, which amounted to \$121,000.

Canadian Butter Production in 1921 Should Increase

Canada produced 122,776,580 pounds of creamery butter in 1921, says a report of the Department of Agriculture in Canada. The total product was valued at \$45,893,088. The 1921 production was an increase over the previous year of 11,084,862 pounds. The value of the product, however, decreased by \$17,732,111. In order of quantity of production, the provinces ranged as follows: Ontario, Quebec, Alberta, Manitoba, Saskatchewan, Nova Scotia, British Columbia, New Brunswick and Prince Edward Island.

Coming Conventions

American Chemical Society, 1709 G Street, N. W., Washington, D. C. Fall meeting, Sept. 4 to 9, inclusive, at William Penn Hotel, Pittsburgh. Secretary, Charles L. Parsons.

National Food Brokers Association, 326 West Madison Street, Chicago. Convention to be held simultaneously with conventions of National Canners' Association and the Canning Machinery and Supplies Association. Secretary, Paul Fishback.

Biscuit and Cracker Manufacturers' Association of America, 90 West Broadway, New York. Convention date to be set by board of directors. Secretary, R. T. Stokes.

American Macaroni Manufacturers' Association, 26 Front Street, Brooklyn. Convention date not yet set. Secretary, Edward Z. Vermeylen.

National Macaroni Manufacturers' Association, Braidwood, Ill. Next meeting, June, 1923. Secretary, M. J. Donna.

American Specialty Manufacturers' Association, 53 Park Place, New York. Next meeting in Atlantic City in November. Secretary, H. F. Thunhorst.

American Association Creamery Butter Manufacturers, Continental and Commercial Bank Building, Chicago. Annual meeting at La Salle Hotel, Chicago, Nov. 28. Secretary, George L. McKay.

American Manufacturers' Association of Products from Corn, 208 South La Salle Street, Chicago. Annual meeting early in the year. Secretary, Dr. W. P. Cutler.

National Coffee Roasters Association, 64 Water Street, New York. Convention in New Orleans, Nov. 22 to 24. Manager, Felix Coste.

Flavoring Extract Manufacturers' Association of the United States. Date of next convention to be set in January. Secretary, Gordon M. Day-Bergwall Co., Milwaukee, Wis.

American Corn Millers' Federation, 332 South La Salle Street, Chicago. Convention in November. Secretary, T. M. Chivington.

Institute of American Meat Packers, 509 South Wabash Avenue, Chicago. Convention Oct. 9, Hotel Drake, Chicago. Secretary, W. W. Woods.

National Canners' Association, 1739 H Street, N. W., Washington, D. C. Date of convention not set. Secretary, Frank E. Gorrell.

Association of Operative Millers, Postal Telegraph Building, Kansas City, Mo. Next convention, June 4 to 9, 1923. Secretary, M. F. Dillon.

National Dairy Union, 630 Louisiana Avenue, Washington, D. C. Next meeting probably at National Dairy Exposition, St. Paul, Minn., Oct. 12, in connection with meeting of National Creamery Buttermakers' Association. Secretary, A. M. Loomis.

American Bakers' Association, 1135 Fullerton Avenue, Chicago. Convention and exposition on Municipal Pier, Chicago, week of Sept. 11. Business manager, H. E. Larnard.

National Pickle Packers' Association, 326 West Madison Street, Chicago. Convention date not set. Secretary, F. A. Vickers.

National Confectioners' Association, 11 West Washington Street, Chicago. Convention date not set. Secretary, Walter C. Hughes.

National Dairy Council, 910 South Michigan Avenue, Chicago, Ill. Annual meeting, Dec. 7, Chicago. National Dairy Show, Oct. 7 to 14, St. Paul. Secretary, M. O. Maughan.

National Paper Box Manufacturers' Association, 112 North Broad Street, Philadelphia. Annual convention, May 9 to 11, 1923, Claypool Hotel, Indianapolis, Ind. Secretary, William W. Baird.

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Cannery Inspection Requires Care and Thoroughness

The primary functions of food inspectors are to observe and report on the operation of food factories, among which fruit and vegetable canneries occupy an important place. What conditions or methods of handling foods the inspector should look for, and the standards with which these conditions or methods should be compared are discussed in Department Bulletin 1084, Inspection of Fruit and Vegetable Canneries, compiled by F. B. Linton, assistant to the chief, Bureau of Chemistry, United States Department of Agriculture, from reports furnished by a committee of food inspectors.

The point of view from which the material is treated is confined to the making of thorough cannery inspections for the purpose of preparing a report that will serve as a basis for administrative action in the enforcement of a food-control law.

The duties of the inspector begin with a critical examination of all raw fruits and vegetables on hand, including information as to how they are transported to the cannery and the time that elapses from picking to processing. The importance of starting with fresh, sound, clean, properly matured fruit can not be too strongly emphasized.

A survey of the surroundings of the cannery is also necessary to note every feature that would have a bearing on the health of employees or the wholesomeness and quality of the finished product. A fertilizer plant in the vicinity, for instance, should be reported. The drainage and disposal of waste should be observed.

Every detail of the canning processes should be inspected. The number and make of machines and any peculiarity in their method of operation is one such detail. Efficient sorting should be the rule. While important, grading for size, texture, and color is secondary to the elimination of defective products.

Attention to Washing

Careful attention should be given to the matter of washing. The preparation of fruits or vegetables for processing is frequently done by hand; the employees engaged in this work should be free from communicable diseases. All waste should be disposed of promptly. The fill must be uniform and up to the requirements of the law for each product.

The entire operation of processing should be described in the inspector's report. The stock of filled cans should be gone over and any evidence of spoilage detected. The annual output of each product should be reported, and some of the cans in stock opened and examined critically for quality of content and weight of drained solids. If the department in which the inspector is working does not have standards of its own, the published standards adopted by the Bureau of Chemistry, of which copies may be obtained on application, will be found useful as a guide.

Both short weight and slack fill may be due to lack of proper control of the filling operation, while spoilage may be due to underprocessing. The inspector should endeavor to ascertain the cause.

The appearance of the employees and general cleanliness of the establishment are of great importance. Special details in connection with tomato canneries are brought out as well as points for most other specific products extensively canned. The proper form to use in making a report is illustrated. The inspector is urged to place emphasis in selecting and analyzing his observations, on the characteristic and vital points. The characteristic points are those which give the cannery under consideration a grade of unsatisfactory, fair, good, or excellent; the vital points are those which, because of the conditions in the cannery, directly affect the quality and wholesomeness of the food in the can.

Opportunity for American Condensed Milk in Arabia

Although a greater part of the inhabitants of the Red Sea district of Arabia are herdsmen and shepherds, deriving a constant supply of milk from the flocks and herds, condensed milk is always in demand, particularly in the larger cities. The consul at Aden, reports to the Department of Commerce. With the exception of a short period during the war when American milk was the only kind obtainable, the Red Sea market has for years been monopolized by European brands, and the Consul thinks that he would feel more at home if he could again see a few brands of American milk on the store shelves. Aden is a free port, the only import expenses being the landing charges and a small wharfage charge.

American Food Packers Cool to British Food Show

Although three-quarters of the space at the London Olympia food exposition this fall has been allotted, the almost total lack of interest shown by American food-producing and packing firms has occasioned considerable surprise. The

American consulate in London has informed the Department of Commerce that less than twelve American firms have up to the present arranged to be represented at this exposition, while the French, Danish, Dutch, and other governments, together with large trade bodies in Poland, Italy, etc., have secured large blocks of space. So far, only one American meat canning concern will be represented and no canned fruit or vegetable packers.

Committees Appointed for Convention of Institute of American Meat Packers

Committees for the annual convention of the Institute of American Meat Packers, to be held Oct. 9, 10 and 11 in Chicago, have been appointed by President Thomas E. Wilson. The Institute development plan, drawn up and submitted by President Wilson to the executive committee and unanimously approved, will be submitted to this convention for official sanction.

The special convention committee, which will have direct charge of all convention matters, is headed by President Wilson. Local arrangements, including the annual dinner, are in charge of C. B. Heinemann. The entertainment com-

mittee is headed by Charles E. Herrick, Brennan Packing Co., Chicago, and the publicity for the convention is in the hands of W. W. Woods, chairman of the publicity committee. The program committee is headed by R. F. Eagle, Wilson & Co., Chicago, and the regional boosters' committee, which is composed of 18 of the members, is headed by William F. Schluderberg, William Schluderberg-T. J. Kurdle Co., Baltimore, Md.

Three New Fruit Packing Plants for Alseol, California

Three new fresh fruit packing plants are to be built at Alseol, near Lodi, Calif., according to recent reports. A plant to be erected by the E. Y. Foley Company is estimated to cost \$10,000; one by the Lafayette Fruit Company at a cost of about \$5,000; and a new shed by the Peppers Fruit Company at a cost of between \$7,000 and \$8,000. It is estimated that about 800 ears will be shipped from that point. The plant of the Lafayette Fruit Company will ship through the American Fruit Growers, Inc.

American Brands Preferred by Chinese

American provisions, in spite of keen competition with other foreign foodstuffs, are being demanded more and more by the Chinese throughout the Mukden and other districts. Canned and dried fruits, cereals in bulk and package, flour, butter, molasses and sirups, coffee, jams, meats, cocoa, cheese, milk, canned meats and fish, spices, etc., all in packages, are making a tremendous appeal to the rice eaters, the Consul General at Mukden, China, informs the Foodstuffs Division of the Department of Commerce.

Most of the groceries formerly purchased by the Chinese were used for gift purposes, but as the natives are beginning to gradually use such goods in their daily life an increasing demand is constantly occurring. Prior to the war, Great Britain supplied the bulk of the provisions sold throughout the Mukden district, but when the American products appeared during the war they found quick favor, and now a market awaits American exporters which can not be overlooked.

Chinese Uses Foreign Sugar

Failing to keep pace with modern developments, China's sugar industry, like the tea industry, has declined to the point where the country depends upon foreign sugar for its supply. Fifty years ago China was an exporter of sugar, says a report to the Foodstuffs Division of the Department of Commerce, but modern methods have won China's old markets. In China the juice is still pressed from the cane between granite or hardwood rollers through which the cane is drawn by cog wheels turned by bullocks. A stone basin beneath receives the juice which is boiled, without any attempt at clarification, in open iron pans. The boiled juice is then poured into earthenware jars which are left open to the air 30 or 40 days, according to the weather, until the contents are thoroughly dry. The sugar obtained is sorted into three grades, the first, or uppermost, in the jar being white; the middle, green; and the lowermost, brown. In some parts of the country, however, the natives are beginning to realize the importance of modern methods and attempts are being made to install modern machinery.

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Decision on Sugar Freight Rates

The Interstate Commerce Commission has made public the tentative decision of Examiner Disque in various sugar rate cases which have been pending before the Commission for some months. These cases, when considered together, involve an investigation of many important sugar rate adjustments of the United States.

The Examiner recommends that the Western carriers be denied permission to publish rates on sugar from California to Chicago lower than the rates to intermediate points and suggests that the rate from California to Chicago be increased 7c per 100 pounds, or to a basis 32c higher than the rate from Baltimore to Chicago, with a 60,000-pound minimum.

In the complaint brought by certain Eastern refiners seeking equal rates to Chicago from all Atlantic Seaboard and Gulf refining points, the Examiner recommends that the present port differential basis from the East may be continued, and that the rates from New Orleans to the territory on and north of the Ohio River and on and east of the Mississippi River may be the same as the rates from Baltimore, or Colorado, whichever may be lower, with the Baltimore-Chicago rate as a minimum.

In the case involving reductions in the rates on sugar from producing points in the States of Colorado, Utah and Idaho to the territory east of the Indiana-Illinois state line, which were protested by the Eastern and Southern carriers and Eastern and Gulf refiners and Eastern beet sugar manufacturers, the Examiner finds that the rates proposed would be less than reasonable, and recommends their cancellation.

Federal Inspectors to Watch Labeling of Fruits and Vegetables

Federal food inspectors have been instructed to watch the labeling of fruits and vegetables shipped into interstate commerce to see that they contain no misstatements of grade, quality, or quantity, it is announced by the Bureau of Chemistry, United States Department of Agriculture.

The Bureau of Agricultural Economics of the department is authorized to investigate and certify to shippers and other interested parties the quality and condition of fruits, vegetables, poultry, butter, hay, and other perishable farm products, when offered for interstate shipment or when received at central markets designated by the Secretary of Agriculture, or at points nearby, upon payment of a fee to cover the cost of the service. A shipper thus may ascertain in advance of shipment the correct grade and quality of his product. It is optional with him whether or not an examination is made before shipment, but if he designates the grade or quality of his product he should be sure that he does it correctly.

The Federal food and drugs act, in its application to fruits and vegetables in package form, requires that the quantity of contents be plainly and conspicuously marked on the outside of the package in terms of weight, measure, or numerical count. The Federal law does not require that any statement be made regarding the grade or the quality of food, but if any statements are made on the labels of food packages regarding grade or quality they should be true.

Appropriate action will be taken, say officials, to correct all practices that vio-

Fresh Milk Sent to London from South Africa

A ten-gallon can of fresh milk treated by the Jonas Neilsen system of pasteurization has just arrived in London from South Africa, according to a newspaper report sent to the Department of Commerce by its London representative. After searching practical, as well as bacteriological and chemical examinations by eminent dairy and scientific authorities, it was declared equal in flavor and attractiveness to the best English milk, and free from every trace of harmful bacteria and chemical preservatives. Exhaustive tests also proved that the fat content rose as cream in a thoroughly normal manner and that the keeping qualities of both cream and milk were not affected up to seventy-two hours' exposure to the heat and atmosphere of a London office.

The authorities consider, as a result of this experiment, that whole milk can be sent around the world without losing its freshness or nutritive properties.

late provisions of the law. Information on marking the quantity of contents on packages of fruits and vegetables may be obtained upon application to the Bureau of Chemistry, United States Department of Agriculture, Washington, D. C.

Macaroni Gift Made to Near East Relief by Manufacturers

As a result of the recent appeal made by the Near East Relief before the National Macaroni Manufacturers Convention, two Chicago manufacturers, the Foulds Milling Company and the Fortune Products Company, are sending a gift carload of 30,000 pounds of macaroni to help solve the feeding problem of the Near East Relief, which is called upon to feed more than 600,000 a day.

In making his appeal for food contributions, Dr. J. C. Curran, of the Near East Relief, said, "We physicians who have been on the ground and seen the terrible hunger of the little children who sometimes wander through the hills for weeks feeding upon weeds, old bones or whatever they can get hold of, have observed the wonderful recuperative value of macaroni to these starving little bodies. Macaroni is rich in gluten, the body and health building elements required especially by children. It is a splendid meat substitute and can be made very palatable. We would rather have macaroni than any other food for those hungry children."

Other macaroni manufacturers throughout the country are planning to follow the lead of the two Chicago manufacturers and send shipments to the Near East.

Twenty-five cargoes have been contributed by the United States to Near East Relief from June 14, 1921 to May 25, 1922. Food shipments were as follows:

	Pounds
Wheat flour	11,939,059
Corn grits and flour	34,431,429
Beans	4,657,827
Rolled oats, rye, rice	13,692,828
Canned milk	1,690,888
Miscellaneous foods	1,284,518

"Aunt Jemima" Shows Marked Increase in Sales

That business slumps are least felt by products well established with the public and trade seems proved again in the case of "Aunt Jemima" pancake flour. The past general depression hasn't changed a bit the smile on the well-known mammy's face.

The sales of Aunt Jemima Pancake Flour, good last year, are already beaten, according to a statement recently made by Robert R. Clark, president of the Aunt Jemima Mills Company. Business to July this year showed a marked increase over business to the same date of last year, he informs The American Food Journal.

In the same statement he adds a bit of interesting news for distributors of "Aunt Jemima" pancake and "Aunt Jemima" buckwheat pancake flour.

Plans are already made to put Aunt Jemima advertising before more people this winter than ever before. Space in eight of the leading national magazines will be used, beginning with the September issues and continuing into next year.

Large bill board space will be occupied by new "Aunt Jemima" posters in hundreds of cities and towns. Street cars will give additional publicity in the centers.

Oleomargarine Consumption is Increasing

The production of oleomargarine for May of this year was about equal to that for May of last year. The production for June of this year was 12,312,229 pounds as against 8,953,041 pounds for June last year, an increase of 3,359,188 pounds. These figures would seem to indicate that the oleomargarine industry has passed through its period of depression and is making successful progress toward normalcy, according to the Institute of Margarin Manufacturers, Washington, D. C.

While the total oleomargarine production this year was less than it was last year, it was many million pounds more than it was during any prewar year. For the fiscal year ending June 30, 1922, it was 187,894,912 pounds as against 280,717,067 pounds for the previous year, a decrease for the whole year of 92,822,155 pounds, according to the reports of the U. S. Department of Agriculture.

Sardines Have Deserted Norway

Norway's sardine canneries are standing idle, as the bristling seem to have deserted the Norwegian coast this year, according to a dispatch just received by the canned foods unit of the Department of Commerce from Bergen, Norway.

"The failure of the delicate little fish to appear," he states, "has left many of the sardine canneries idle and many people without work. Early in the season there were the usual bristling signs and preparations for the fishing were made, but all were disappointed. A few 'mossa,' very young bristling, were taken but so small as to have little commercial value. At the Bergen canneries no bristling at all have been received; only a few young herring, which are sometimes put up by the Norwegians as sardines, but are a much less delicate product. 'The failure of the bristling to appear is generally ascribed to the unusually cold and rainy weather.'"

Volume XVII

The American Food Journal

Number 9

The National Magazine of the Food Trades

Established 1906

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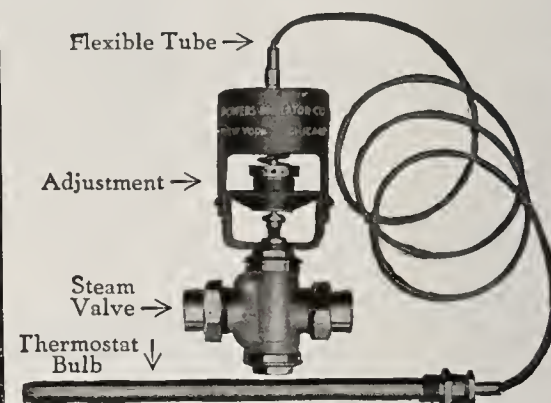
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the effort to produce an honest, perfect and palatable loaf of 100 per cent Whole Wheat Bread—an effort now crowned by complete success, as evidenced by the remarkable popularity of the new loaf.

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The American Food Journal

The National Magazine of the Food Trades

Established 1906

Vol. XVII

SEPTEMBER, 1922

No. 9

Plans Made for Many New Editorial Features

Beginning With the Autumn Issue There Will be Additional Material of Value for All Readers of The American Food Journal

THE Editors of The American Food Journal are pleased to announce that there are in preparation a number of new and valuable editorial features which will appear in this magazine beginning with the October issue and continuing throughout the remainder of this year and next year. Among them will be the following:

“ACCOMPLISHMENTS in the Food Industry,” a series of straightforward accounts of what has been done in all divisions of the food field, will begin with an article on “What the Baking Industry Has Accomplished.” The series will proceed to discuss among other branches, the outstanding activities of the dairy industry, the milling, packing, sugar, baking powder, canning, spice, nut, cheese and margarin industries, giving in each case only the late and striking accomplishments, so that the series as a whole will form an up-to-date history of activities in the field of American food.

“THE Story of Foods” will be a story worth the telling and worth the reading. Each article will cover broadly interesting facts relating to some one of our commonly used foodstuffs. In each case we plan to tell a little of the history of the food, much of the manufacture and most of all regarding its place in the world of food economics. “The Story of the Banana,” “The Story of the Tomato,” “The Story of Milk”; these are but a few of the titles in the series.

QUESTIONS and dispassionate discussion, most of us agree, tend to keep a subject alive. We shall, therefore, endeavor to use the leaven of discussion to lighten the mass of facts that exist on such subjects as “The Breakfast Food Situation: Why?” “Successes in Marketing Certain Commodities.” We are also planning to publish “The Confessions of a Food Manufacturer,” in which a big man in the food field will tell why he failed and why he succeeded.

“GOOD Things In Current Food Magazines” begins in this issue. We hope to make this department an important feature of The American Food Journal. There will be crisply terse excerpts from magazines in the various branches of the food industry, rather than dry abstracts.

A MAGAZINE, like an individual, counts friends as among its most treasured possessions. The American Food Journal has many friends, among whom none is more valued than Dr. Lafayette Mendel, Professor of Physiological Chemistry at Yale University, authority on nutrition, research worker, writer, lecturer. Dr. Mendel is standing by with suggestions and wise counsel. Many of the features noted in this prospectus are from our same friendly adviser. So broadly human is Dr. Mendel's viewpoint that he combines

the wisdom of the scientist with the practical mind of the business man and the understanding of the humanitarian.

LIKE others of ripened years and experience we enjoy a bit of reminiscence now and then. “I can remember,” says one reader to another, “When every one ate meat and potatoes and hot cakes and sometimes even pie for breakfast, and look at us today! Breakfast now means a bit of toast, with porridge for the children, an egg and fruit, and sometimes not even the egg! Times have changed.” Times have changed and food customs have changed with the times. We are planning an article that will discuss some of the reasons for changes in diet; asking ourselves which are due to advance in knowledge of nutrition, which to economic conditions, etc.

CIVIC pride is a virtue which we aim to teach our children. Some cities take justifiable pride in their public markets, others do not think very much about them; still others are frankly ashamed that they have not made more progress along these lines. That our readers may be informed as to the accomplishments of various municipalities and the municipalities themselves inspired to friendly rivalry, we hope to publish during the coming year stories of public markets, good, bad and indifferent. Certainly a strong and efficient market is an asset to the city, a protector of public health and a “booster” of business.

“SCIENTIFIC research is all very well,” said a food manufacturer recently, “but I don't need it in my plant. I've been in business a good many years and I guess I'll get along if I cut out the highbrow stuff.” He will get along, but we are eager to help him to do more than “get along”; we wish to show this man and others who feel as he does that scientific research is good business; that the laboratory expert has a fund of information that will help manufacturers in building for strong business success. We are preparing, therefore, a series of articles on “The Place of the Laboratory Man in the World of Food Economics.” Nationally known authorities will contribute to the series.

ONE of the stimulating things about the food business is that there are so many interests represented. Good team work is always inspiring and we feel that we are specially fortunate in that we are playing on the same team with manufacturers, scientists, and educators. These last, the dietitians and home economics workers, are with us in large number. For this group there will be special features, frank discussions as to how the educators may profitably broaden their field by joining forces with other groups, that each may profit by the experiences of the other and that the common aim, feeding the American people, may best be accomplished.

Food Control Officials to Meet in Kansas City, October 3

THE program of the twenty-sixth annual convention of the Association of American Dairy, Food and Drug Officials, at the Hotel Baltimore, Kansas City, Mo., covers four days, Oct. 3, 4, 5 and 6. Among the prominent speakers at the convention will be Dr. Charles Thom of the United States Bureau of Chemistry, Dr. J. S. Abbott of the Institute of Margarin Manufacturers, and Dr. W. P. Cutler of the American Manufacturers' Association of Products from Corn.

Tuesday, October 3, 9 A. M.

Invocation.

Address of Welcome, Hon. Arthur M. Hyde, Governor of Missouri.

Address of Welcome, Hon. Jas. Cowgill, Mayor of Kansas City.

Response to Addresses of Welcome, A. H. Jones, Dairy and Food Commissioner, Illinois.

Announcements.

President's Address, Capt. R. E. Rose, State Chemist of Florida.

2 P. M.

Drugs

Appointment of Committees.

State Drug Law Enforcement, I. L. Miller, Food and Drug Commissioner, Indiana.

Discussion, Dr. T. A. Cheatham, State Drug Inspector, Atlanta, Ga.

The Work of the American Medical Association Laboratory, Illustrated, Dr. L. E. Warren, American Medical Association, Chicago.

Pharmacopeal Revision, Prof. L. E. Sayre, University of Kansas.

Wednesday, October 4, 10 A. M.

Foods

Report of Committee on Credentials.

Food Poisoning, Dr. Charles Thom, Bureau of Chemistry, Washington.

Discussion, E. J. Lea, Director, Bureau of Food and Drugs, California.

Proper Procedure for State Officials in Cases of Food Poisoning, Dr. S. J. Crumbine, Secretary, State Board of Health, Kansas.

Discussion, Dr. E. H. Golaz, Chemist, State Board of Health, Texas.

2 P. M.

Trade Session

Uniform Food Laws, Dr. T. J. Bryan, Calumet Baking Powder Company.

How Industries Can Co-operate with Officials, Dr. H. E. Barnard, American Bakers Association.

What Producers Expect of Dairy and Food Control Officials, Dr. J. S. Abbott, Institute of Margarin Manufacturers.

Corn Sirup vs. Glucose, Dr. W. P. Cutler, American Manufacturers' Association of Products from Corn.

Co-operation of Food Officials with Manufacturers, Wm. H. Long, Libby, McNeil & Libby.

Sanitary Service and the Industries, Dr. W. C. Witte, U. S. Public Health Service.

Bottled Carbonated Beverages, W. Parker Jones, Washington, D. C.

Thursday, October 5, 10 A. M.

Dairy

Manufactured Dairy Products, J. Q. Emery, Dairy and Food Commissioner, Wisconsin.

Discussion, W. C. Geagley, State Analyst, Lansing, Michigan.

Beverages, Dr. W. W. Skinner, Bureau of Chemistry.

Discussion, W. M. Allen, State Chemist, North Carolina.

11 A. M.

Address, Hon. W. G. Campbell, Chief, Bureau of Chemistry, Washington.

2 P. M.

Executive Session

Relation of Sectional Associations to National Association, W. S. Frisbie, Bureau of Chemistry, Washington.

Activities of the Various Sectional Associations of Dairy Food and Drug Officials, Presidents of Sectional Associations.

Present Method of Procedure of the Committee on Definitions and Standards, Dr. W. W. Skinner.

Standardization of Milk Bottles, W. S. Frisbie.

Sanitary Inspection of Hotels and Restaurants, Miss Sarah H. Vance, Director, Bureau Food and Drugs, Kentucky.

Selection of Meeting Places, Capt. R. E. Rose.

Question Box Answers.

8 P. M.

Annual Banquet.

Friday, October 6, 10 A. M.

Municipal Food and Drug Control, Dr. H. J. Knapp, City Chemist, Cleveland, O.

Discussion, J. W. Yates, Director Dairy and Food Division, Kansas City.

Medical Examination of Food Handlers, Dr. Chas. V. Craster, Newark, N. J.

Discussion.

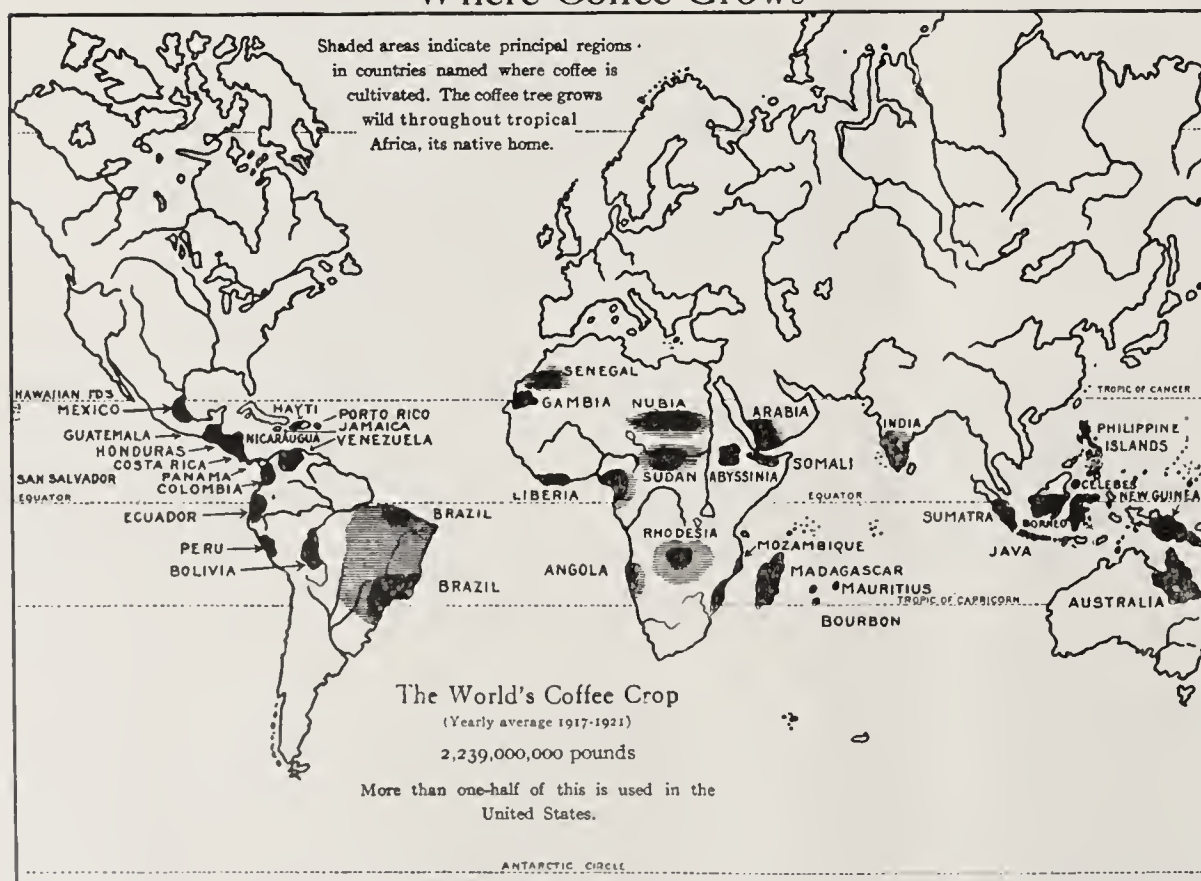
Disposal of Questionable Foods, C. S. Prather, Food and Drug Commissioner, Missouri.

Discussion, A. D. Sibbald, Assistant Food and Drug Commissioner, Minnesota.

2 P. M.

Reports of officers and committees, election of officers and selection of next meeting place.

Where Coffee Grows



1918	Mexico	30,172,000
1920	British India	26,144,000
1920	Nicaragua	15,345,000
1919	Port of Aden	11,555,000
1919	Dominican Republic	3,729,000
1920	Hawaii	2,760,000

Stresses Importance of an Abundant Supply of Fat

"An abundant supply of fat is of major importance in the consideration of nutrition, whether of the individual or the nation. Not only are fats wholesome, palatable and most useful in cooking, but many also carry fat-soluble vitamins A," says the Office of Home Economics of the United States Department of Agriculture, in Bulletin No. 1033.

The Office of Home Economics has tested the digestibility of about 60 or more different fats and oils, which are eaten in one form or another every day. They are used in the form of butter, oleomargarine, lard, lard compounds, shortening agents in liquid or solid form, fat meat, fat in lean meats, salad dressing, etc.

"This statement," says the Institute of Margarin Manufacturers, Washington, D. C., "contradicts the National Dairy Council, which declares that butter is the only food fat that contains vitamins A."

Exports of Coffee from Principal Producing Countries (in pounds)	Year
1920	Brazil 1,524,452,000
1919	Dutch East Indies 268,058,000
1920	Colombia 190,962,000

1919	Venezuela	179,790,000
1920	Guatemala	95,535,000
1920	Salvador	82,864,000
1920	Haiti	68,292,000
1920	Porto Rico	32,777,000
1920	Costa Rica	30,860,000

Use of Vacuum Pan For Fruit Products

Recent Developments in Its Adaptation to the Manufacture of Jams, Jellies, Marmalades, Etc.

By THEODORE F. BRAMAN

Elyria Enameled Products Company, Elyria, Ohio

THERE are numerous ways in which to create a greater demand for a particular kind of any commercial food product. One manufacturer may attract the public by his clever advertising; another may put out a product whose quality cannot be forgotten; while another may give greater value for a less price. As a matter of fact the average manufacturer tries to do all three of these things by making a

flow into the test cup and the cup shut off from the rest of the pan; then opened and the contents tested for jelling point or for gravity in the case of a fruit syrup. The vacuum pan is frequently supplied with an agitator. This is particularly desirable for keeping the contents in motion during heating up or cooling operations when there is no agitation due to boiling. A thermometer permanently attached

so as to be vacuum tight completes the list of operating accessories which form a part of the vacuum pan.

An enameled vacuum pan is frequently operated with preheating kettles. The line drawing (Figure 1) shows a system employing two vacuum pans and four preheaters. The one vacuum pump will maintain a vacuum on either or both pans. It is equipped with a jet condenser which condenses the steam coming from the boiling fruit by means of cold water supplied from a cooling pond or regular water supply lines. Both pans are operated from a common platform and the filling of the preheating kettles can be controlled from the same point.

The operation of such a pan in the making of jams and jellies is almost as simple as that of an open kettle. The small manufacturer, using the pan in the simplest way, can carry out this entire process in the one unit. The raw fruit pulp and sugar are put in through the open manhole. The steam is turned on immediately. The agitator is operated to assist in dissolving the sugar and also to hasten the heating. If the fruit consists of hard berries which must be softened at high temperatures the contents is brought to boiling with the kettle open and later the vacuum is applied to concen-

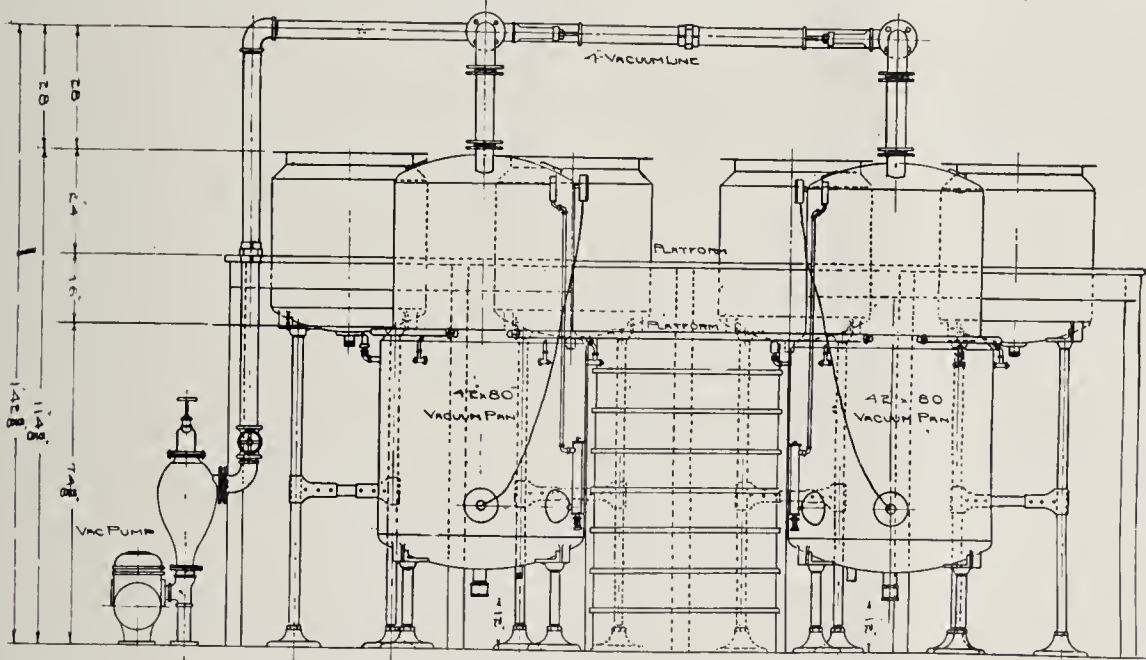


Fig. 1. A system employing two vacuum pans and four preheaters; the one vacuum pump will maintain a vacuum on either or both pans.

high quality product as economically as he knows how and then telling the public about it through his advertising. Improvements in quality of product and in manufacturing economies are dependent largely on the development of new processing units, and new equipment which permits such advantages is being sought for constantly. In the fruit products industry, one of the more recent developments which has permitted remarkable improvements in quality is the glass enameled vacuum pan.

An enameled vacuum pan is very well suited for the requirements of fruit product manufacture. The pan is very simple. It consists, for the most part, of a closed enameled kettle with steam jacket. It is equipped with peepholes for observing the boiling under vacuum. The vacuum break is essentially a valve for releasing the vacuum when desired. In order to get a sample of the jam or other fruit product being manufactured, without releasing the vacuum in the pan, a test cup is supplied. The test cup is merely a small capped cylinder so piped up that the jelly can be made to

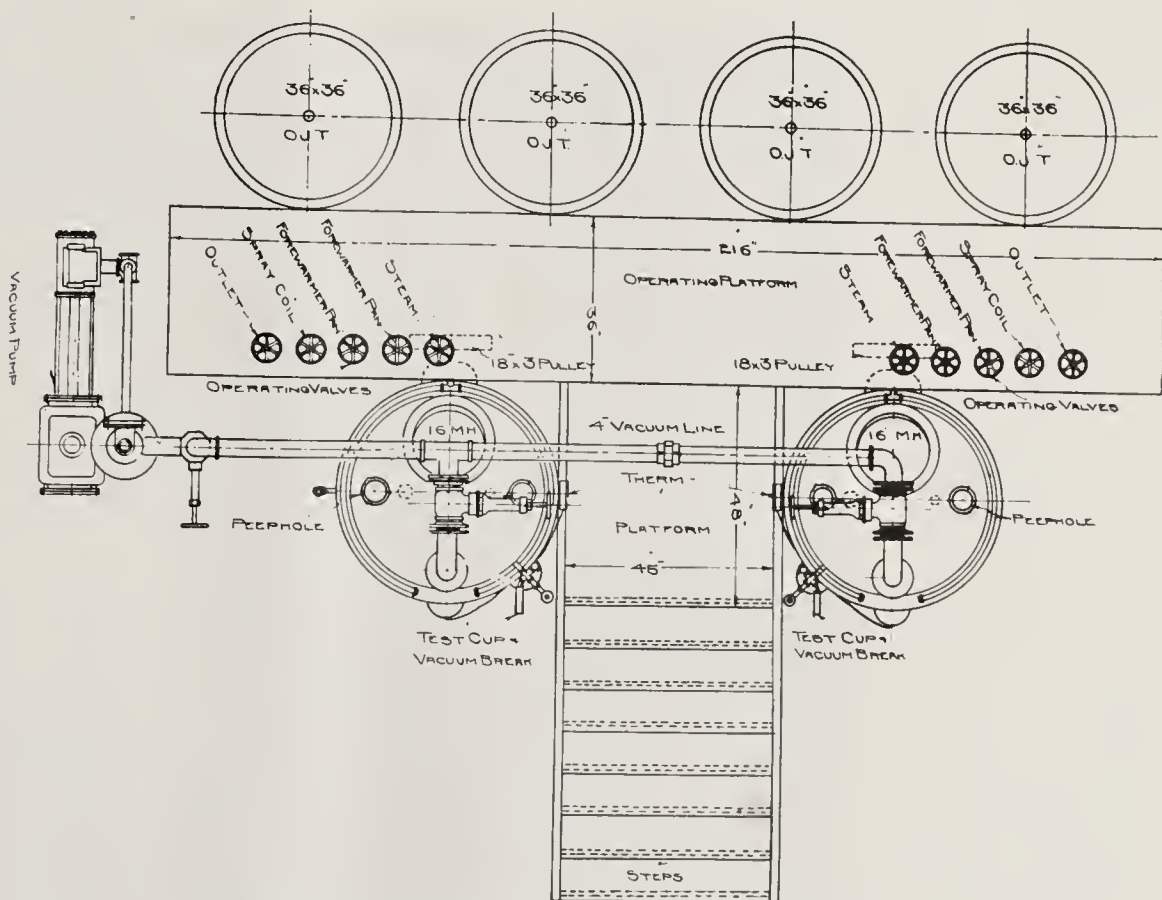


Fig. 2. An installation consisting of two 300-gallon vacuum pans and four preheating kettles arranged for production of jams, jellies, etc.

trate the mixture. For clear juices fruit pulp, or soft fruit the pan is closed when all the material is in and the heating up is done under vacuum.

Jam boils at 145 deg. F. to 150 deg. F. under vacuum. The boiling operation can be observed through glass peepholes one of which is arranged with an electric light so as to illuminate the interior of the kettle. The rate of boiling is quite constant in a glass lined kettle and only occasional watching is required. Near the end of the operation a sample can be drawn into the test cup whenever desired. The gravity or degrees Balling can be determined right in the cup. A sample can be removed and tested by cooling a small cupful with water or by noticing the clear appearance just as in the open kettle method. The boiling temperature cannot be used to determine the finishing point of the vacuum kettle jam because slight changes in the vacuum affect the boiling point.

As a matter of fact when working with a certain type of jam or jelly it is soon possible to determine the time required to cook a batch and the end point can practically be judged by the time of boiling.

The finished jam or jelly in the vacuum kettle is at a temperature of about 150 deg. F. This is just the right temperature for filling a jam or jelly fairly high in sugar content. In the case of a product which contains considerable acid and pectin to produce a jell with the lowest possible amounts of sugar, it may be considered desirable to bring the finished batch to a higher heat before filling. If so, it is a simple matter to heat the jelly up to 190 deg. F. or higher by releasing the vacuum and continuing the heating for a few minutes. The finished jam or jelly can be piped directly from the vacuum pan to the filling machines on the floor below. It is not necessary to cook a vacuum cooked product either before or after filling as is necessary with the open kettle system because the reduced pressure in the former case permits boiling at much lower temperatures.

An enameled vacuum pan adapts itself very nicely to the production system of the average modern fruit products factory. The line drawing (figure 10) shows an installation consisting of two 300 gallon vacuum pans and 4 preheating kettles arranged for pro-

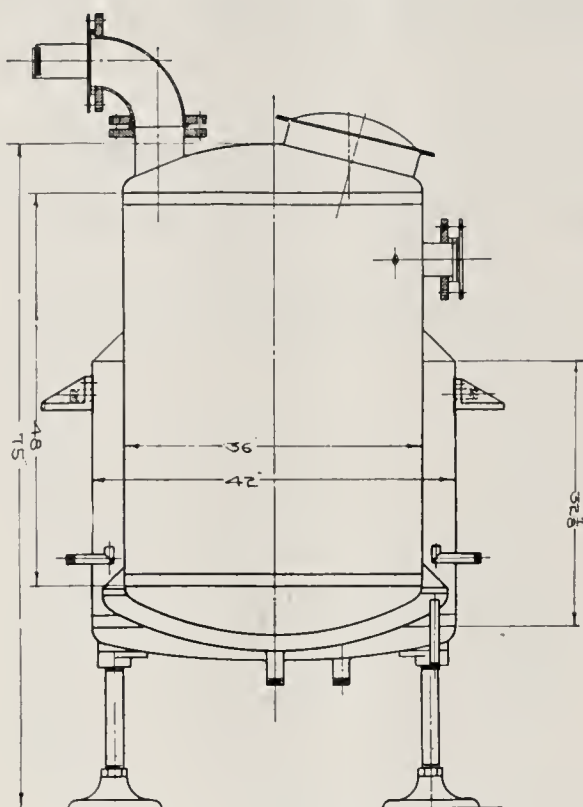


Fig. 3. A vacuum pan with a double jacket designed for manufacture of orange sirup and similar products which present difficult problems.

duction of jams, jellies, apple butter, marmalades and similar products. The fruit or fruit pulp and sugar are measured into the preheating kettles. These kettles are merely steam jacketed cookers. They permit warming up the raw ingredients so as to eliminate this heating up period in the vacuum pan, or they can be used to soften the fruit and start the inversion of the sugar. The preheating kettles are connected to a bottom inlet in the vacuum pan and the mixed and preheated pulp is drawn into the pan by the vacuum. Two kettles contain

enough raw mix to fill the vacuum pan to its working capacity with finished jelly. The pulp is drawn into the pan from time to time until the entire charge is in and the boiling continued until tests show that the product is finished. The vacuum is released and the pan then furnishes the supply for the filling machines.

Little watching is required during boiling and time is available for the operator to measure out the ingredients into the other two preheating kettles. While the finished product is being drawn from one vacuum pan it is possible to start the boiling operation in the other pan. In this way one operator can keep two vacuum pans going, test his product, take care of the vacuum pump and turn out 20,000 to 25,000 pounds of jam in a 10-hr. day.

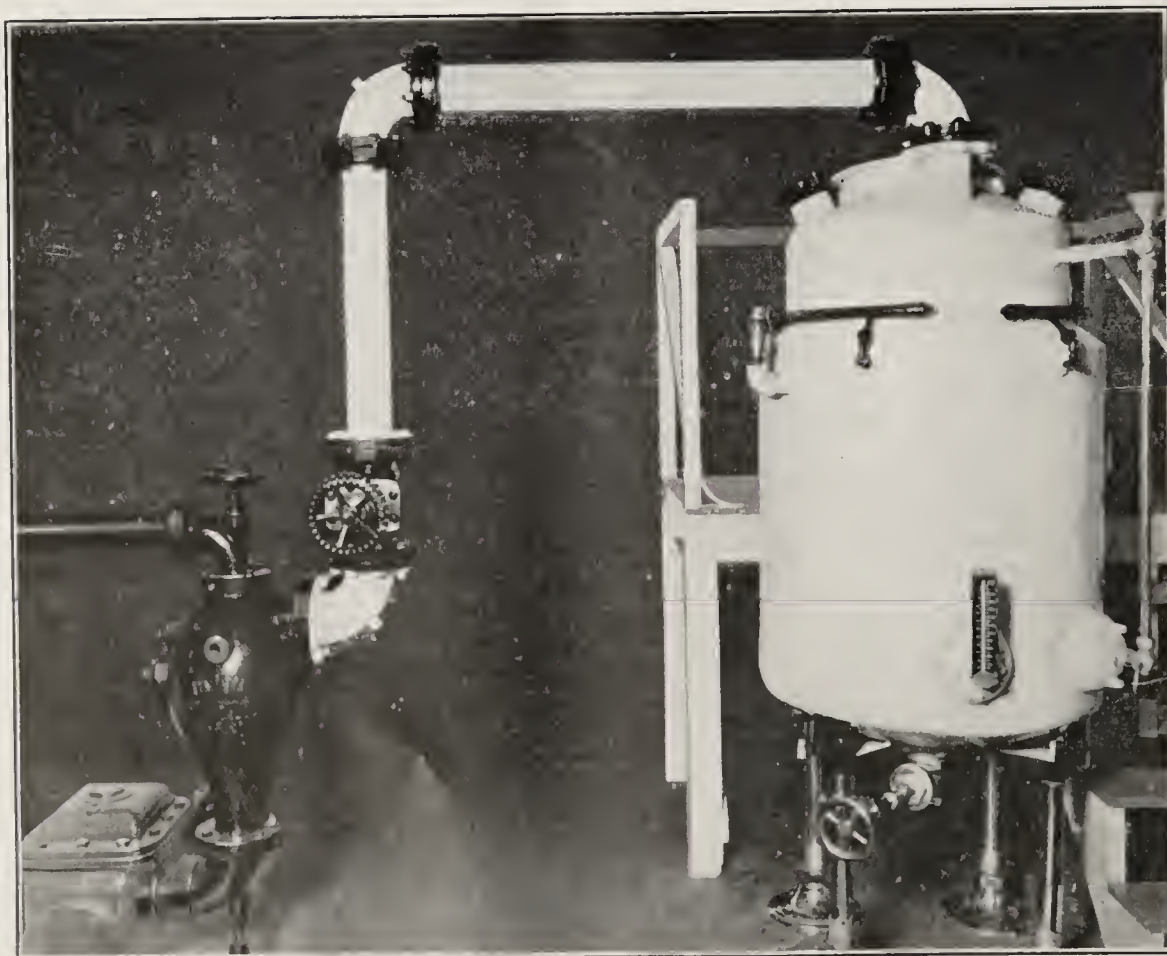
It requires a little skill to inaugurate such a system but once started, the average factory worker can handle the vacuum pans as easily as open kettles.

An enameled vacuum pan can be used for making any of the clear fruit jellies such as currant or apple jelly. It is very suitable for making various preserves. The degree of preheating necessary depends on whether it is a soft or hard fruit. The pan will work equally well whether the product be a pure fruit and sugar jelly or whether a compound jelly with added pectin and acid be made.

A very tempting apple butter can be made under vacuum. The apple pulp and sugar are supplied through the preheating kettles. If whole or ground spices are added these may be put into a bag which is put into the vacuum pan at the start. Apple butter so made will have almost as light a color as the original pulp and will contain all the flavor of the fresh

fruit. The dark color in an open kettle product is due largely to the oxidizing action of the air. In the vacuum pan practically no air is present during the boiling. If the manufacturer, however, prefers a darker color it is a simple matter to open the pan near the end of the operation and continue heating for a few minutes until the desired color is obtained.

When making orange marmalade under vacuum it is necessary to soften the shredded peel by open kettle boiling in the regular way. The softened peel is added to the pulp and sugar in



A photographic illustration of a vacuum pan installation

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Results of Some Vinegar Investigations

Experiments Prove Western Apples Produce Product Which Has Same Chemical Constants as Eastern Variety

By CHARLES H. HUNT*

Nutrition Section, Ohio Agricultural Experiment Station

THE standard for cider vinegar in the State of Washington is the same as the standard set by the United States Department of Agriculture. The data from which the United States Department of Agriculture obtained its standard for cider vinegar were obtained from a study of cider vinegar made from Eastern apples and under Eastern conditions. In some of the court cases in that State which have arisen from the sale of vinegar which was below standard, the contention of the defendants has been that the approved State standard cannot be maintained, since Western apples will not produce vinegar with the same chemical constants as that produced from Eastern apples. The cause for the difference in the vinegars was attributed to the fact that some of the apples from which vinegar was made in Washington were grown under irrigation. However, apples in the State of Washington are grown under both

of fresh apple juice,¹ of known purity were obtained by inspectors of the State Department of Agriculture. The juice was not from any particular variety of apples but represented the product pressed separately from both irrigated and non-irrigated apples. The samples were collected in Novem-

to determine whether the process of actification could be shortened. If so, it would be of value from a practical standpoint. Although the alcoholic fermentation was hastened by the addition of yeast, there was no apparent shortening of the process as a whole. The per cent of alcohol found in each

TABLE II.

Description		—Alcohol—	
		% Volume	% Weight
1. Irrigated	(a) Yeast	7.22	5.74
	(b) Normal	7.32	5.80
2. Irrigated	(a) Yeast	6.17	4.94
	(b) Normal	6.63	5.31
3. Non-irrigated	(a) Yeast	6.24	4.98
	(b) Normal	6.86	5.48
4. Non-irrigated	(a) Yeast	6.10	4.87
	(b) Normal	6.24	5.00
Remarks			
The alcohol was determined after all apparent fermentation had ceased.			

ber and upon arrival at the laboratory were immediately analyzed. The data obtained from the analyses of four samples are recorded in Table I.

Allowing for loss due to evaporation of alcohol, apple juice should contain

portion is recorded in Table II.

It will be noticed that there was a less amount of alcohol in the case where yeast was added than where normal fermentation took place. This was undoubtedly due to the action of antagonistic yeast.

To samples 1b, 2a, 3b, and 4a (Table II) a small quantity of pure cider vinegar was added and they were then allowed to acetify normally. The acetification took place in a room of ordinary temperature, the temperature ranging from 50 degrees to 75 degrees Fahrenheit. The containers were stoppered with corks through which a glass tube had been run. This glass tube allowed the entry of the necessary amount of oxygen but prevented excessive evaporation.

The amount of acid found in each sample was used as a measure for determining the completion of the process of acetification. When the acid content showed that the acetification was near completion, the portions were analyzed. The data, together with the United States Department of Agriculture data, for comparison, are shown in Table III.

TABLE I.

	Total Solids %	Ash %	Sp. gravity	Reducing sugars %	Sucrose %	Total Sugars as Invert %	Acid as Acetic %	Alcohol Vol. %	Wt. %
1. Irrigated	13.69	.31	1.056	10.35	3.01	13.51	.85	0.9	0.0
2. Irrigated	14.09	.26	1.056	9.01	4.13	13.34	.54	0.0	0.0
3. Non-irr.	13.92	.33	1.058	10.40	1.88	12.17	.55	0.0	0.0
4. Non-irr.	7.69	.28	1.025	5.82	.75	11.13*	.63	2.93	2.26

* Sample No. 4 had partially fermented and the total sugars were calculated from the unfermented sugar and alcohol.

irrigated and non-irrigated conditions, and, therefore, this study was undertaken to determine: First, whether Western apples would produce vinegar with the same chemical constants as that produced from Eastern apples and, second, whether vinegar made from irrigated apples differs appreciably from that made from non-irrigated apples.

Method

In carrying out this study samples

* Published with the permission of the Director of the Washington Experiment Station.

¹ These samples represent several thousand gallons of apple juice.

at least 8 per cent² sugar to produce the requisite amount of acid in the vinegar. A glance at the table shows that the samples analyzed contained more than the necessary amount of sugar to produce a vinegar that will meet the requirements of the approved standards.

Two portions of each of the analyzed samples were then taken, one portion of each was treated with yeast and the other portion was allowed to ferment normally. The object in adding the yeast to part of the samples was

² New York Exp. Station Bulletin No. 258, p. 442.

TABLE III.

	Solids %	Ash %	Sugars %	Non Sugar Solids %	Sugar Alkalinity ⁴	Soluble phosphoric acid ⁵	Insoluble phosphoric acid ⁵	Total Acid %	Ash in N. S.	Glycerine %
Bureau of Chemistry ³	1.90-3.00	.27-.70	.15-.70	1.75-2.60	27-42	11-18	6.14	5.7-6.3	13-19%	24-46
1. Irrigated (Normal)	1.96	.30	.26	1.70	34.	10.4	9.2	7.03	17.6	.26
2. Irrigated (Yeast)	2.27	.32	.77	1.50	30.	10.4	8.0	6.34	16.0	.42
3. Non-irrigated (Normal)	1.90	.27	.40	1.50	36.	9.2	9.6	7.01	18.0	.38
4. Non-irrigated (Yeast)	2.36	.32	.47	1.89	34.	9.2	9.6	5.37	16.0	.46

³ The data were taken from a circular report sent out from the Bureau of Chemistry to State Collaboration Chemists. The data were obtained from analyzing over 300 samples of vinegar of known purity.

⁴ The number of cc. .1 N acid to neutralize the water soluble ash from 100 cc. vinegar.

⁵ The number of milligrams of P₂O₅ that was obtained from the ash of 100 cc. vinegar.

Table III shows that it is possible to produce a vinegar, from Western apples by the slow fermentation process which has the same or nearly the same chemical constants as that made from Eastern apples and under Eastern conditions; also, that it is possible to produce a vinegar from irrigated apples with the same or nearly the same chemical constants as that made from non-irrigated apples. It will be noticed that the non-sugar solids and soluble phosphoric acid were slightly lower in most cases and the acid high-

will make a better vinegar than that made by the "quick" or generator process. It was deemed desirable, therefore, to investigate such a possibility. Samples of vinegar of known purity and which had been prepared by the generator process were collected and analyzed and the results obtained are recorded in Table IV.

Contrasting Table III with Table IV, we note that there is a similarity in chemical constants between vinegar made by the "slow" and "quick" processes and most samples were within

TABLE IV.

	Solids	Ash	Sugars	Non-Sugar Solids	Alkalinity	Total Acid	Ash in N.S. Solids	Glycerine
	%	%	%	%	%	%	%	%
1.	2.88	.42	.61	2.27	34	6.89	18.5	.28
2.	2.63	.31	.37	2.26	32	6.21	13.7	.33
3.	2.11	.30	.31	1.80	30	5.14	16.6	.34
4.	2.66	.33	.43	2.23	36	6.87	14.7	.31
5.	2.54	.34	.35	2.19	32	5.96	15.5	.29
6.	2.36	.31	.37	1.99		5.97	15.5	.31

er in two cases than those found by the United States Department of Agriculture. This can be accounted for by the fact that in the "slow" process the action was more nearly complete than in the "quick" or generator process.

At the present time very little vinegar is produced by the "slow" process, except for home use, so the contentions may be that the "slow" process

the maximum and minimum figures as set by the United States Department of Agriculture.

Conclusion

By the above data it is shown that Western apples, whether grown in irrigated or non-irrigated orchards will produce vinegar which has the same chemical constants as vinegar made from Eastern apples.

The Advantages of Dehydration

Some of the Ways in Which it Surpasses Sun Drying or Evaporation Pointed Out

IN an address before the National Association of Wholesale Pie Bakers, Carl J. Eastman, of the King's Food Products Company, Portland, Ore., gave a brief comparison of dehydration with other methods of drying food products. He said in part:

"A study of the history of food preservation shows that there have been five different methods used in preparing foods so that they might be used in out-of-season times; sun drying; evaporation or artificial drying; canning; desiccation; dehydration. Experience and tests have shown that all of these methods of food preservation, with the exception of dehydration, destroy the vitamins and in a greater or lesser degree change the flavor and nutritive values.

"Dehydration, on the other hand, preserves the food by removing the excess water by means of carefully regulated air currents. The air currents are accurately controlled, both as to temperature and humidity, by automatic instruments. The cellular structure and the natural color is retained, and because the moisture is removed gently and gradually, the fruits absorb water rapidly and come back to their normal size and appearance. The tunnel system of dehydration is the one in use in King plants and is considered most practical. In

this system the fruit is placed on trays, made of fine mesh screen. These trays are then placed on movable trucks and the trucks placed in the tunnels.

"There are many objections to sun drying as a method of food preservation. First of all, the drying agent, the Sun, is not always at one's command. There is no way of regulating the length of drying time, nor can one be sure of the conditions under which the drying occurs. In sun drying the action is so gradual there is always danger of fermentation. With the development of dehydration I believe that sun drying will soon pass into oblivion. The expensive land now utilized for only a few weeks each year for drying fields will then be converted into fruit producing orchards and the products will be dehydrated in modern, sanitary, efficient plants.

"Next to sun drying comes evaporation, which is known in the trade as kiln drying. The average evaporating plant consists of a square building with a number of perforated floors. The fruits are spread on these floors and heat is applied by means of a furnace underneath the building. The air passes through the products, which are usually spread on the floors to a depth of from four to six inches, and then out through a ventilator in the roof.

No provision is made for regulating the temperature or humidity, or the air velocity. The high temperature necessary in the operation of a drying kiln changes the natural sugars and breaks down the cellular structure of the fruit, and on account of the varying temperature in different parts of the kiln, the evaporated product is never uniform in quality.

"As canning is in no way comparable with drying we will not go into details.

"Desiccation is sometimes confused with dehydration. Desiccation as applied to the drying of foods means that the product has been oven dried or that heat has been applied, by radiation, indirectly to the product. This method, like evaporation, is unscientific and fails to retain the natural valuable elements of the product.

"In dehydration a physical change takes place and not a chemical change. Sugar, color, flavor, and, in fact, all that Nature intended that we should have in fresh fruits are fully retained when dehydration is properly practiced.

"I often use a simple illustration to bring out the fact that dehydration is a natural process. Any housewife will tell you that she would much prefer to dry her fine woollens on a day when a good wind is blowing and temperature is low, rather than on a hot, still day. On a windy, cool day the articles would dry gradually and would come off the line soft and pliable. On a hot, still day they would shrink and become harsh and stiff.

"The secret, then, of dehydration, is simple enough. It is the removal of moisture with low temperatures by means of air pulled over the products at a high velocity. A dehydrating tunnel is no warmer than a Turkish bath and you and I would be no more uncomfortable in one of them than we would be in a Turkish bath room. The temperature is so low that drying would not take place were it not for the swiftly moving air currents which act as a blotter, pulling the moisture from the products, by capillary attraction.

"One of the most remarkable things about these swiftly moving currents of air, is that instead of case hardening the outside of the fruit, as in evaporation, it removes the moisture from the center of the fruit first. In the case of a prune, the meat around the pit is the first to dry and the last particle of moisture to leave the prune is that next to the skin. In the case of an apple, if we dehydrate a whole apple the seeds and the seed pockets in the center of the apple dry first. This action, as you will readily see, leaves the cellular structure intact, and as stated, it makes it possible for the fruit to reabsorb readily the moisture which dehydrating has removed."

Mr. Eastman described the plants of the King's Food Products Company at Salem and Dalles, which represent an investment of more than \$600,000 and handle about 170 green tons per day.

The Best Things From Current Food Magazines

A Digest of the Month's Periodicals for the Busy Reader

Meeting Cost Problems in Food Packing

WITHOUT a practical and tested cost accounting system the food manufacturer is left to his own resources in fixing his selling price. He usually estimates his own costs as well as he is able, comparing the results with the selling prices of his neighbors.

The editor of "Canning Age" writing in the issue for August, 1922, gives his readers the benefit of careful studies which have extended over several years' time. The studies were undertaken by the firm of William W. Thompson & Company, of Chicago, at the instigation of The National Preservers and Fruit Products Association.

"The person who is responsible for the term 'cost accounting,'" continues the article, "evidently had little breadth of vision, or he never would have applied a term so misleading. Instead of attracting general interest to a subject of most fascinating appeal if it is intricate, he relegated it to the field of ledgers and columns of figures, where high stools and eye shades predominate. Cost accounting is cost finding."

Continuing the article says:

"And that is the keynote of the whole cost finding system which the Association has adopted. It is simple to handle. It requires no more clerks than were originally employed. It is absolutely devoid of red tape.

The new system provides that manufacturing costs in the Preserving Industry will be grouped under four main divisions, Material, Packing Supplies, Direct Labor, and Factory Expense or Overhead. Under some one of these heads will be charged every item of factory expense."

The various divisions of the cost accounting system are described in detail, together with charts and graphs.

In summing up the discussion, the author says in part:

"We are now ready for our final form, the comparative cost summary. This pictures the result of the whole month's operations and is ascertained by a simple, accurate system of records. It shows whether the curve of net costs is moving upward or downward. The form is self-evident. It is the concise business-like statement that every plant executive wants before him at certain critical times in his operating

season. Study it a few moments, and this becomes self-evident.

"Now that a cost system has been prepared, what do the preservers expect to gain from it?

"Books are nothing more than a record of the history of the business. When manufacturers all make a product of similar nature they have a common interest in overcoming their mutual troubles and difficulties. With uniform records, they can talk things over with at least the assurance that each has the same concept of the point under discussion.

"No one, in these days, doubts the advantage of trade statistics. They are an entirely legal and necessary adjunct of doing business, if not misused. In fact, a bureau of the United States Department of Agriculture designs accounting systems for organizations marketing agricultural products, and at this very instant is asking for men to assist in demonstrating them. No accurate or reliable information about an industry can possibly be produced without uniform accounting methods.

"A period of competition is being entered into in most lines of industry, today, which makes it extremely difficult to show a profit unless every item of cost is critically analyzed and passed on as the most efficient, practical, and economical method of accomplishing a result at the price. How can the cost be analyzed without accurate records? is the question accountants ask."

Perhaps the most significant thing about the whole paper is the fact that the system as outlined is applicable to all industries as well as to that of the fruit growers. The article will repay careful study.

A Bright Future Predicted for the Beef Industry

All signs at present point to stability in the beef industry and V. H. Munnecke, manager, dressed beef department of Armour & Co., writes in "The Producer" (Denver, Col.), for July, 1922:

"Successful marketing both of beef and of veal is dependent on a knowledge of the trade demands of each of the different sections of the country, and the selling of each class and grade of beef at the point where it can realize the best price. It frequently hap-

pens that steers from the same car-lot purchased on the Chicago market are sold in different states, and realize differences in price as great as \$2 to \$4 per hundredweight, despite the fact that the carcasses are of the same grade. The distributor attempts, of course, to place his carcasses at the point where the most money will be realized, but it often happens that his supplies would overload his best markets and his surplus must be vented at lower prices. On this account, the price level for cattle of this grade will be lower than if all carcasses could reach the top market. But a distributor is at the same disadvantage if he does not know the characteristics of each regional market, since he cannot pay the prices for cattle which his competitor who knows the market does, and his business is consequently restricted. It is because of their acquaintance with, and ability to supply, these regional demands that certain firms in the packing industry have developed nation-wide businesses instead of local businesses, because such companies as can reach understandingly these better markets can provide better prices for the producer and build greater volumes of trade.

"Present indications are that the future of the beef industry is bright. Despite the heavy runs of cattle to market during the spring months, the consumptive trade was able to absorb all of it without the usual break in prices, and, although one can scarcely predict a boom in the beef business, every sign at present points to its stability and permanence at approximately the present annual price levels, if the natural seasonal changes and minor trade fluctuations are disregarded."

That American per-capita consumption of beef is decreasing is indicated by a tabulation of figures showing consumption by decades, from 1830 to 1920. The author points out, however, that these figures are not an absolute indication of conditions, because of the fact that wastes of beef have decreased considerably since 1900.

Continuing, Mr. Munnecke says:

"There has been a marked increase of milk cattle; this increase has had a very marked effect on the quality of beef coming to the market. For example, at the markets of Chicago, Milwaukee, and St. Paul, approximately 50 per cent of the receipts are ani-

mals of dairy characteristics. At Chicago this proportion is not quite equaled, but at Milwaukee and St. Paul it is exceeded. Including all markets, the proportion of cattle of dairy blood probably runs around 30 per cent. Dairy cattle, of course, do not provide a high grade of meat; but the development of the small retail shop in connection with groceries has afforded an outlet for this class of cattle, which has helped the dairy industry, but has proved extremely detrimental to the production and sale of quality beef."

Helping the Hospital Dietary Department

A specially designed refrigerating system; an electric air refrigerator; a system of food carts; and electrical cooking coils; these are some of the helps to the dietary department described by "Hospital Management" for July, 1922.

We quote briefly from the article:

Some New Developments

Among the ideas noted recently dealing with the improvement of the hospital food services are the following:

Noteworthy progress in electrical cooking devices, the objects striven for being greater durability and simplification of parts.

Development of an electrical air refrigerator for hospital departments requiring only a small amount of refrigeration.

Increase in practice of serving foods on floors or wards from conveyors, including conveyors equipped with plate racks.

Preparation of coffee and tea in diet kitchens, instead of carrying it from main kitchen.

Except for the air refrigerator, the other ideas listed in the foregoing are not entirely new, but there are a large number of hospitals whose dietary departments are not familiar with the devices or methods.

Service from Food Carts

For several years a number of hospitals have experimented with the service of food on the floor from a heated conveyor whose compartments are filled with food from the main kitchen. At Mt. Sinai Hospital, Cleveland, and at University Homeopathic Hospital, Ann Arbor, Mich., to mention only two, this method has been most successful, and there is a steady addition to the number of hospitals following this practice. Recently this idea has been carried a step further through the use of plate racks in the conveyors which permits the hot foods to be placed on the plates in the main kitchen. Then the racks are placed in the heated conveyor and are taken to the floors and served direct to private room patients. The Toledo Cooker Company, Toledo, O., now is marketing a conveyor with a plate rack. This company for years has been manufacturing other types of food conveyors.

Electric Air Refrigerator

A new electrically operated refrigerator has just been placed on the market which should be of unusual value in dietary kitchens, in the maternity ward and elsewhere in the hospital where only a small amount of refrigeration is required. This refrigerator employs atmospheric air instead of chemicals as a refrigerating medium. It has neither valves, piping, water cooling nor brine tank and requires and has no adjustments. As the refrigerating machine is supplied complete and is integral with the refrigerator, it requires only connection to the electric lighting circuit in order to operate.

The application of this new principle of using air under slight pressure for producing cold, lends itself like no other to the construction of a machine having long life of service and absolute reliability as well as sustained efficiency of performance.

The elimination of mechanism for the control of a chemical refrigerant has simplified the apparatus and increased its dependability.

Getting the Food to the Hospital Patient

In a series of interviews with hospital superintendents "Hospital Management" for August, 1922, summarizes the methods that govern dietary service in hospitals of various sizes.

Details of dietary administration in a 20-bed hospital; in a 50-bed; in a 125- and a 150-bed institution are given, the symposium closing with an account of the dietary department in a hospital where the dietitian has personal supervision of individual diets:

Separate Card for Each Food

"The dietary department of Decatur and Macon County Hospital, Decatur, Ill., is in charge of a graduate dietitian, who is responsible for the cooking of food as well as its proper distribution to the various floor diet kitchens," says Miss R. Helen Cleland, superintendent.

"A pupil nurse in the main diet kitchen prepares baby formulas, makes broths, custards, and all special diet dishes under the direction of the dietitian. At times a student dietitian assists the student nurse. All special diet trays, such as diabetic, nephritic, etc., are served directly from the main diet kitchen. Private patients in the main building are served trays from the main diet kitchen.

"The buying of foodstuffs is done by the dietitian. Requisitions for supplies from the store room are filled by a person directly responsible to the dietitian, and nothing is given out without the dietitian's sanction.

"A monthly inventory is kept of all foodstuffs. The card index system is used and a daily record made of each day's purchase. A separate card is used for each different food article. An account is also kept of foodstuffs

used each day, making it easy to determine at the end of the month what has been used, received and what actually remains. The total amount consumed and the average price paid for each individual foodstuff is kept for reference and for comparison. From the total amount expended for food during the month plus the salaries of the kitchen personnel, we determine the per capita.

"The menus are prepared one day in advance. The kitchen personnel is composed of a chef, second cook, vegetable woman, pan washer and supply woman, dish washer, cleaning woman, and diet kitchen maid. The chef directs the work of the second cook, vegetable woman, and pan washer, and is responsible for the meal being ready and sent to the floors on time.

"Each floor has its own diet kitchen, equipped with steam table, serving table, tray rack and refrigerator. The food is sent to each diet kitchen in aluminum steam table pots, so there is no transferring of food after it reaches the diet kitchen.

"A nurse in each diet kitchen serves the trays which are carried directly to the patient without delay. The dietitian makes regular visits to the various serving kitchens. All unused food is returned to the main kitchen.

"The dishes for each floor are washed in the diet kitchen. A standard dish count is kept for each floor serving kitchen. Breakage is reported daily and replaced once a week. Each month a count is made and the shortage is requisitioned from the store room. In some instances breakage is not reported. The monthly count checks up on that."

Improving the Sanitation of Bakeries

That the past decade has witnessed great improvement in bakery sanitation is the conclusion reached by the American Bakers' Association.

Dr. William C. Witte, in "Baking Technology," for August 15, 1922, writes as follows:

At the last annual convention of the American Bakers' Association there was adopted a sanitary code which was drafted after a complete study of existing state and city laws and ordinances. With the adoption of this code it was decided to organize a Sanitary Service for the purpose of studying the existing sanitary conditions of the baking industry and to raise the sanitary standards to the highest level, thereby assuring the consuming public of the production of a clean and wholesome product. The United States Public Health Service was asked to assist in this work and did so by detailing one of its commissioned officers to co-operate with the American Institute of Baking. A program of action was decided upon, the essential points of which were:

1. Sanitary survey of bakeries throughout the United States.

2. Study of health hazards of baking industry.

3. Development of co-operation between baking industry and State and city sanitary officers.

4. Maintenance of sanitary service for assistance to bakers in trouble.

It was thought best not to organize an inspection service as bakeries are being inspected by existing law enforcement departments and additional inspectors would be undesirable. It was therefore decided to secure, if possible, co-operation from State and city departments and through them conduct the sanitary surveys. A blank was devised, complete in detail, upon which reports of exact sanitary conditions could be reported and a circular letter was addressed to State departments, asking for their co-operation. The results from this were especially gratifying, as only seven states stated that they could not co-operate, giving as their reason one of the following: not legal, insufficient appropriation, insufficient personnel or inspection reports considered entirely confidential.

Reports have been received from fifteen states and show sanitary scores ranging from 39 per cent to 96 per cent; 21 per cent of the total were scored less than 70 per cent. The outstanding deficiency was poor personal hygiene of workers. None of the bakeries surveyed was making a study of absenteeism although a number reported high labor turnover; 89 per cent of the bakeries surveyed were given demerits for poor construction of buildings; 64 per cent did not have proper provisions for storing their raw materials; some reported evidence of rodents and a large number reported insect pests. It was surprising the number of bakeries which were not maintaining laboratory supervision of their raw materials.

The general sanitation of work rooms was scored as fairly good; some plants reported considerable flour dust present. It was interesting to note that practically all bakeries surveyed were using some machinery and in most the entire process was machine in character.

Dr. Witte then discusses the various reasons why bakery sanitation is necessary, that is for protection of the product and protection of the employees. Bakers are regarded by the insurance companies as only fair risks and after an account of the hazards of the industry as a whole Dr. Witte submits the following:

"The hours of employment in bakeries has some effect on hazards in that most of our survey reports show nine and ten hour work days which will increase fatigue and they also show that considerable of the work is done during night hours.

"The difference of opinion regarding the health of bakers, the controversy regarding the dangers from flour dust, and the mortality statistics which show high percentage of death from respiratory diseases among bakers would in-

dicade that further study should be made. To this end, we are establishing an absenteeism study in a number of plants and would suggest periodical examination of workers, especially before employment and previous to re-employment following absence on account of sickness.

Summary and Conclusions

"1. There has been a marked improvement in bakery sanitation within the last ten years, especially since installation of machinery.

"2. Bakery sanitation is indicated because of protection afforded product and protection from disease and injury of bakery employes.

"3. Further study is necessary to show present status of hazards of baking industry."

Research of Interest to the Macaroni Industry

Throughout the present fiscal year the National Cereal Products Laboratory has been at work on several projects connected with the macaroni industry. Dr. Benjamin R. Jacobs, director of the laboratory, gives in "The New Macaroni Journal," for August 15, 1922, an account of some of these projects.

"This laboratory has been working on standards for various raw materials used by the manufacturers. Approximately 150 samples of semolina have been analyzed. A large amount of the data obtained has been tabulated for use as a basis for the standardization of this product. Several plants are using this data in the purchase of their raw material and are requiring millers to make deliveries of their product on the basis of the analysis obtained.

"We have also investigated a number of brands of dried eggs sold to manufacturers and have determined the relative proportions of yolk and white contained in the average egg, as well as the moisture in the yolks and whites. Our investigation has shown that a large number of these products, sold to the manufacturer as whole eggs, are products from which part of the whites have been abstracted and also products which consist of mechanical mixtures of yolks and whites very seldom existing in the proportion in which they exist in eggs.

"A number of manufacturers who have had misunderstanding with the various state and food officials on matters relating to the composition and labeling of their products have been helped and their cases settled out of court. In cases where one manufacturer has complained against another for violations of the pure food laws, these have been adjusted without the necessity of referring them to any food inspection department. Suggestions have been made for correcting these evils within the industry as they should be, thus saving the manufacturer complained of, the expense and odium attached to prosecution and as-

suring the manufacturer complaining a better competitive field.

"A campaign has also been carried on to induce the manufacturers to organize their plants more thoroughly than they are at present. Practically every manufacturer has his selling end highly organized, in fact, this appears to be about the only part of the business that some manufacturers think should be organized. Very few have paid much attention to organizing the purchasing departments to see that they are delivered what they pay for and to see that proper use is made of it after it enters their plant. The same is true of the manufacturing end, large amounts are expended, really wasted, in duplication of unnecessary work, in lack of continuity of the process and in lack of system in the handling of their product and packages through the various stages from the time their flour and semolina is stored to the time it reaches the shipping department as a finished product. Thousands of dollars are expended annually by manufacturers in non-related, non-coordinated, haphazard experimental work, particularly in an effort to solve their own problems in drying. It is safe to say that one tenth of this aggregate amount would be enough to solve once for all the fundamental principles involved in any drying plant which with certain modifications and within certain ranges could be applied to any drying equipment in any plant."

Interesting Conclusions Regarding the Dairy Industry

"Generally speaking," writes T. A. Borman of the Beatrice Creamery Company, in the "Butter, Cheese and Egg Journal," for August 9, 1922, "people have little idea of the actual extent of the dairy business as compared with other agricultural pursuits."

Continuing, Mr. Borman says:

"In 1919 the latest date for which I have convenient reports, there were in round figures 23,500,000 milk cows in the United States. These had a value, in round figures, of \$1,800,000,000. In this year the milk production amounted to 98,862,000,000 pounds. This was whole milk. Twenty-two and one-half per cent of this was used in the manufacture of 1,054,000,000 pounds of creamery butter which had a value, wholesale, of \$580,000,000. Thirteen and eight-tenths per cent of the milk of that year was made into "farm butter" with a reported value of \$270,000,000. Thus we have a total of \$850,000,000, representing 35.3 per cent of the total milk production.

"Forty-five and six-tenths per cent of the total milk produced was consumed as whole milk with a value in round figures of \$1,617,000,000, retail. This accounts for 81 per cent of the total volume of whole milk with a value in round figures of \$2,500,000,000.

"We have still to account for 19 per cent of the whole milk which en-

tered into the making of condensed milk, cheese, etc. We have not undertaken to arrive at the value of this 19 per cent. Anyway, the creamery butter, the farm butter and the whole milk combined in value of \$2,500,000,000 is best appreciated when we observe that it equals two times the value of hard and soft coal and of the gold and silver mined in this country in the year 1918, and exceeded the combined value of the oats and cotton crops of the same year; and if we placed a conservative value on the 19 per cent made into condensed milk, cheese, etc., adding the same to the value of the 81 per cent, the total value of our dairy products exceeds the value of the corn crop of that year, and which crop is the king of the agricultural products of this country.

"The figures may be a shade more impressive when it is understood that if 10 per cent of the value of creamery butter, farm-made butter and whole milk consumed were set aside for road building it would construct a concrete roadway extending from New York to Portland, thence to San Francisco and then back to New York which would be a road 7,100 miles long, and at a cost of \$40,000 per mile.

"In 1850 our first statistics report 313,000,000 pounds—all farm made butter. In 1870 practically our entire output was made on the farm. In 1910, 60 per cent was farm made, but in 1921 only 38 per cent was made on farm. An increase in excess of 300 per cent in total output in 70 years, and from exclusively farm made to 62 per cent factory made in 5,500 creameries, together with the fact that we produce more than five times as much butter as any other country is a record on which the industry can well be congratulated."

Manufacturers Exchange Views on Fibre Boxes

Among the food manufacturers contributing to a symposium on fibre boxes in "Fibre Containers," for August, 1922, are the following:

Salada Tea Company. "Over 75 per cent of our product leaves our factory packed in corrugated. When properly sealed with silicate of soda, it is impossible for anyone bent on pilferage to open it without cutting the board and damaging the box. It requires very little time to seal it, which is a great advantage for large users like ourselves.

"We know of only one objection to the use of the corrugated box, and that might be overcome in the future. That is, it will not stand up so well as the wooden box when exposed to excessive dampness. We have, however, had very little trouble in this respect, and do not think this will offset its many advantages."

The Helvetia Company. "Our experience with corrugated and solid fibre shipping containers has taught us to

go easy when we changed from one firm to another. It seems that every business requires just a little different fibre container than any other business and whenever our containers run out and we have to buy from someone else we have some trouble, such as boxes not being of correct size, the finish tends to peel off and a new firm does not always realize the importance of shipping out our containers on the day we specify. Outside of these minor troubles, which we also had to contend with in buying wooden boxes, we consider the corrugated and fibre containers good for our business."

Jersey Cereal Food Company. "We use for our Standard Corn Flake containers a 200-pound test corrugated container, being water-proof on both sides which meets with all railroad requirements. The size of this case is 19½x14¼x26½ inches. We are giving these specifications as you understand a smaller case requires but 175-pound test.

"We find that with the test case such as we have given that our goods reach the consumer in first class shape. We believe that we have no suggestions as to improving a corrugated case that would better our purposes.

"We pack all our Rolled Oats in fibre containers as we believe that fibre is better than corrugated, inasmuch as it does not give vermin a place for hibernating."

National Candy Company, Inc. "We have always considered corrugated or solid fibre, as a satisfactory shipping container, providing, of course, they are manufactured, packed, marked and sealed in accordance with the rules and regulations of Consolidated Freight Classification No. 2. We are great believers in a good substantial shipping container and we do not spare any expense in furnishing our factories with a container that will withstand ordinary rough handling in transportation."

The American Sugar Refining Company. "We use solid fibre containers for shipment of a large part of our carton sugars and corrugated fibre containers for our products packed in glass.

"Our experience with both above types of packages has been entirely satisfactory."

Franco-American Soups. "The fact that we use fibre cases instead of wooden cases for all except export shipments is in itself the most sincere evidence of our preference for fibre containers."

Results of Experiments With New Vitamine Food

Writing in "Good Health," for September, Helen S. Mitchell, Ph.D., says of the cereal "Zep," put up by the Battle Creek Sanitarium Health Food Co.:

"Since the recent emphasis on the importance of vitamine B in the diet,

numerous articles in the form of tablets, capsules and similar preparations, claiming to contain large amounts of this factor, have come on the market. These are all of more or less doubtful efficiency, disagreeable to take, and at best suggest a medicine. It is only recently that the necessity of a palatable food rich in this factor has been recognized and an attempt made to supply it in the form of the cereal 'Zep,' formerly called 'Pep.' In order to determine the potency of this food with respect to its content of vitamine B, several animal-feeding experiments are being conducted in the Nutrition Laboratory at the Battle Creek Sanitarium.

"Young and rapidly growing rats were fed on a purified food mixture containing all of the principles necessary for normal nutrition with the exception of vitamine B. This basal diet is the "standard rat food" used by Osborne and Mendel, and for normal growth is usually supplemented with 0.4 grams (6 grains) of dry brewery yeast daily as a source of vitamine B. Animals fed on the basal diet without the vitamine supplement soon begin to lose weight as a result of a loss of appetite, and finally develop a disease known as polyneuritis, which is characterized by paralysis of the hind legs and occasionally convulsions. If a food rich in vitamine B is offered at this time, the rat will usually eat it greedily, and will show marked signs of improvement."

Dr. Mitchell continued these experiments, until the rats attained normal weight. The conclusion was that two grams of Zep daily was an adequate allowance to provide as a sole source of vitamine B in the diet.

Based on calculations comparing proportion of active tissue in small animals and in man, to be that 1 2-3 ounces or an ordinary serving will furnish sufficient vitamine B for a man.

Packer Directed to Relinquish Control of Two Companies

Stating that acquisition of capital stock in the Moultrie Packing Company, Moultrie, Ga., and the Andalusia Packing Company, Andalusia, Ala., by Swift & Company, was in violation of the Clayton Act, the Federal Trade Commission has directed Swift & Company to divest itself of its holdings. It was found by the commission that in 1917 practically all the outstanding capital stock of the two companies was acquired by purchase, which resulted in substantial lessening of competition. Under the order of the commission, Swift & Company is also required to cease from further suppressing competition in trade heretofore existing between these two packing companies and from further holding or operating the plants of the two concerns.

THE CONFERENCE TABLE

A Means by Which the Manufacturers, Consumer, Research Worker and Educator May Discuss Their Common Problems

By WINIFRED STUART GIBBS

Aim Should be a Super-Normal Diet

WE should not be satisfied with a so-called 'normal' diet, but should strive to formulate one that is super-normal. Merely to keep well is not enough, nothing short of our highest possible development is good enough."

The speaker, Dr. Eugene Lyman Fiske, Medical Director of the Life Extension Institute, continued:

"To attain this super-normal efficiency we must keep everlastingly at our study of dietetics and nutrition until we have achieved a working program that shall furnish a guide to complete bodily integrity.

"We need to get clearly in mind the relation of food to other factors that enter into a health program. To give up over-indulgence should be easy when we reflect on possible gains. At present we are prone to shoot off at temporary tangents, with no systematic food plan to guide us."

"No one thing," said Dr. Fiske, "is the cause of every ill. To enumerate some of the causes of disease, we find heredity, infection, food deficiency, food excess, hormone deficiency, accident, physical strain, poison, psychic apathy and physical apathy. Who shall say what part food has played, directly or indirectly, in making up this catalogue?"

"The weak point in our armor, it seems to me, is that we are apt to settle down into an indifferent jog trot, when, by exercising a little forethought, our jog trot might be along wholesome paths."

Asked to give his views on the subject of planning such a "super-normal" diet, Dr. Fiske said:

"It seems to me that one of the first essentials is to insist on an average protein intake with a margin of safety.



Dr. Eugene Lyman Fiske, Medical Director of Life Extension Institute

"Then, we need to do some work with vitamine B. This is, of course the element that contributes so largely to the stimulation of appetite and thus, indirectly, affects the results of all other food elements. In this connection I advise careful study of cases where the failure of appetite has made it difficult for the individual to eat foods bearing vitamins other than vitamine B. An extra supply of vitamine B will often work wonders."

Dr. Fiske's work with the Life Extension Institute is well known. The gospel preached by this organization is "keep well" and the Institute staff,

through personal advice to individuals, through the broadcasting of information by means of its official bulletin and through lectures, is bending all its energies toward making a keeping well program possible.

The important place given to food, is illustrated by a recent issue of the bulletin, "How to Live."

Two of the four pages are devoted to matters of nutrition. An important article on vitamine deficiency gives some helpful information on cases requiring special diet and forced feeding with vitamins. Then there are tables showing the foods that contain the vitamins A, B and C in protective quantities. These tables are particularly helpful.

The second food page gives practical suggestions for a business man's daily meals, showing how the diet should be planned to insure the highest efficiency.

The fact that an organization whose slogan is "keep well" lays such stress on food in a program of illness prevention is literally food for thought.

It is interesting to note that Dr. Fiske's nutrition work, as well as his other preventive health work is all based on the needs of the individual. "Nothing short of knowing just how that individual stands in his physical make up will give us a sound foundation upon which to build," he says.

When one recalls the old time method of treating a patient for "indigestion" and letting it go at that it is to rejoice that modern physiological chemistry is joining hands with modern methods in diagnosis, so that a diet prescription today means that the individual stomach laboratory in question is to be given all possible help in making its chemical reactions spell renewed digestive power and health.

Planning a Program of Food Advertising

IN the Conference Table for August we considered possibilities of co-operation along the lines of food advertising, so as to make for a program of popular education in nutrition.

This month we submit some suggestions on making a preliminary survey of the problem as a whole, so that

food manufacturers may have the opportunity to consider the frame work of a working plan.

Whether or not it is to be followed closely, a systematic plan is a good starting point for a food manufacturer who is beginning a season's work in educational advertising. The mere putting on paper helps to clarify the

problem and leads to constructive thinking. The following notes are to stimulate discussion.

Educational Advertising in the Food Field

1. The first step might be to meet in conference with food specialists qualified to pass on advertising copy.

This would insure broad treatment and the product would be featured in its rightful place as part of a normal diet, rather than as an isolated food.

2. Next might come an informal survey of local community conditions, preferably under the supervision of a food specialist, for the purpose of deciding on the type of educational advertising likely to prove most effective.

Such a survey might well begin with enlisting the co-operation of the Chamber of Commerce, so that all phases of the business aspects of the question would be covered.

3. Suggestive types of advertising are:

(a) Nutrition demonstrations, similar to those outlined in The Conference Table for August.

(b) Neighborhood information bureaus, in charge of nutrition specialists or nurses, where popular inform-

ation regarding diet, featuring place of the product, weight charts and records; cookery demonstrations; work with food budgets, etc., would be undertaken.

(c) Preparation of subject matter, dietaries, folders and other forms as need is indicated.

(c) Exhibits held either at the information bureau or in some specially selected neighborhood center. Material might include wall charts, weight charts and records, photographs, a scale for recording weights of individual patrons, a live exhibit of small animals, under supervision of local college; sets of cooked meals, featuring product; recipe catalogues; cooking lessons in preparing product, etc.

4. Next might come plans for developing service, deciding how to use results obtained to best advantage, a series of invitation conferences at some neutral point, such as an Acad-

emy of Medicine or Public Library, so that medical authorities and other professional groups would feel free to attend.

5. It has been found possible and enjoyable to enlist the co-operation of public school principals in putting on nutrition projects in connection with special products.

6. Other suggestions are: co-operation with any community or municipal projects already under way; assembling data and making such analyses as are required to advance the work and, most important of all, checking results against sales.

In conclusion it is suggested that the manufacturer will do better to have some such plan as that outlined than to run a more or less isolated demonstration or distribution of material.

The Conference Table would like to hear from food manufacturers on this subject.

Dietitians Plan Elaborate Program for Washington Convention

THE program arranged for the fifth annual convention of the American Dietetic Association at the New Willard Hotel, Washington, from October 16 to 19, completely fills the days and evenings of the members in attendance. Among the speakers at the dinner meeting on Monday evening will be General Hugh Cumming, United States Public Health Service; Major Julia C. Cumming, superintendent, Army Nurse Corps; Mrs. Lenah Higbee, superintendent, Navy Nurse Corps; and Miss Lucy Minnegerode, superintendent of Nurses, United States Public Health Service. Mrs. Mary de Garmo Bryan will preside.

Included in the program of the convention are visits to the Walter Reed General Hospital and the Office of Home Economics, United States Department of Agriculture. On Thursday, October 19, the morning will be spent at Johns Hopkins Hospital, Baltimore, Md., where, under the chairmanship of Miss Lulu Graves, addresses will be delivered by Dr. E. V. McCollum, professor of chemical hygiene, on "The Relation of Animal Experimentation to Dietetics," and Dr. William S. McCann, associate physician of Johns Hopkins Hospital, on "The Relation of the Medical Staff and Diet School in Johns Hopkins Hospital." The afternoon will be spent in the hospital and clinic. The program of the convention follows:

Monday, Oct. 16, 10 A. M.

Dr. Ruth Wheeler, Professor of Nutrition, University of Iowa Medical College, Iowa City, presiding.

Educational Section

The Dietitian—a history, Agnes O'Dea, Johns Hopkins Hospital, Baltimore.

The Dietitian—a statistical study, Breta M. Taylor, Cook County Hospital, Chicago.

The Dietitian—a study of the diet of the American people, Dr. E. V. McCollum, Johns Hopkins Hospital, Baltimore.

2 P. M.

Helene Pope, Margaret Morrison College, Pittsburgh, presiding.

The Dietitian and the Diabetic, Dr. Elliot P. Joslin, Boston, Mass.

A Nutrition Experiment in Industry, Laura Comstock, Eastman Kodak Co., Rochester, N. Y.

Atmosphere and Personality in the Tea Room, Laura M. Piper, Manager, Laura Matilda Tea Room, New York.

Findings in China, Emma Gunther, Teachers College, Columbia University.

Housewifery in China, Ray Balderston, Teachers College, Columbia University.

7 P. M.

Dinner Meeting, New Willard Hotel, Mrs. Mary De Garmo Bryan, presiding.

Tuesday, Oct. 17, 9.30 A. M.

Rena Eckman, Director of Housekeeping and Dietetics, University of Michigan, Ann Arbor, presiding.

Dicto-Therapy Administrative Section

The Role of High Protein in the Etiology of Nephritis, Dr. L. H. Newburg, University of Michigan Hospital, Ann Arbor.

A Laboratory for the Preparation and Service of Research Diets, Dorothy M. Stewart, University of Michigan Hospital, Department of Dietetics.

Hospital Food Costs, Dr. Leroy E. Parkins, assistant superintendent, Peter Bent Brigham Hospital, Boston.

Getting Food to the Patients, Henry C. Wright Hospital, Institutional Bureau of Consultation, New York.

2 P. M.

Visits to Walter Reed General Hospital and Office of Home Economics, U. S. Department of Agriculture.

8 P. M.

Octavia Hall, Peter Bent Brigham Hospital, Boston, presiding.

Nutrition and Diet in Childhood, Mary S. Rose, Teachers College, Columbia University.

The Relation of Hygiene to the Growing Child, Dr. Alfred Hess, New York.

Wednesday, Oct. 18, 10 A. M.

Mrs. Gertrude G. Mudge, presiding.

Food Service Section

The Relation of the Dietitian to the Food Service, Dr. E. V. McCollum, Johns Hopkins Hospital, Baltimore.

Chairman, Committee of Italian Dietary Survey.

The Inter-relation of the Dietitian and the Medical Social Worker, Ida M. Cannon, director of social service, Massachusetts General Hospital, Boston.

Factors other than Food in the Nutrition Problem, Lucy Gillett, Director, Nutrition Bureau, A. I. C. P., New York.

Nutritional Activities in Philadelphia, Anna Louise DePlanter, Child Federation, Philadelphia.

Psychological Aspects of Some Problems in Dietary Administration, Dr. John B. Watson, J. Walter Thompson Co., New York.

2 P. M.

Mrs. Mary D. Bryan, presiding.

Hunger and Thirst, Dr. Walter Cannon, Professor Physiology, Harvard Medical School, Boston.

Business Meeting, Reports of Committees.

5 P. M.

Tea served—Mrs. John D. Rockefeller, Jr., hostess; Mrs. Calvin Coolidge, Mrs. Henry C. Wallace, Mrs. Hugh Cumming.

8 P. M.

Genevieve Field, Walter Reed General Hospital, Washington, presiding.

Food Service for Private Patients, Lulu Graves, director, Dietary Department Mount Sinai Hospital, New York.

Food Service for Ward Patients, Marjory Hulsizer, dietitian, Barnes Hospital, St. Louis.

Food Service for School Children, Daisy Treen, director, School Lunch and New England Kitchen, Women's Educational and Industrial Union, Boston.

Food Service for the Hotel, Mary Lindley, manager, Grace Dodge Hotel, Washington.

Thursday, Oct. 19, 10 A. M.

Johns Hopkins Hospital, Baltimore, Maryland—Lulu Graves, presiding.

The Relation of Animal Experimentation to Dietetics, Dr. E. V. McCollum, professor of Chemical Hygiene, Johns Hopkins Hospital, Baltimore.

The Relation of the Medical Staff and Diet School in Johns Hopkins Hospital, Dr. Wm. S. McCann, associate physician, Johns Hopkins Hospital, Baltimore.

The Dietitian and the Food Service, Dr. E. V. McCollum, Johns Hopkins Hospital, Baltimore.

A Comparative Study of Spoilage in Salmon

An Investigation of the Number and Type of Bacteria Found in Migrating and Hatchery Salmon After Spawning

By Dr. ALBERT C. HUNTER

Microbiological Laboratory, Bureau of Chemistry, United States Department of Agriculture

IT is well known that when mature and nearly ready to spawn, the Pacific salmon of the genus *Oncorhynchus* migrate to fresh water where the spawning takes place. During this spawning migration, which often lasts for several weeks or even months, most of these species of salmon consume no food, utilizing the stored fat and protein as sources of energy. After spawning, the salmon perish and do not return to the sea. As has been shown by C. W. Greene (2) (3) and by C. H. Greene (1), definite chemical changes take place in the muscular tissue of the salmon during the fast of the spawning migration. In studying the changes which occur in the muscular tissue of the king or chinook salmon (*Oncorhynchus tshawytscha*), C. W. Greene (2) reported that during the spawning migration there is a total loss of 85 per cent of the fat and an augmentation in water content of 6.6 per cent.

With the knowledge that the spawned-out salmon obtained from hatcheries, where the eggs are collected for artificial propagation, are frequently used for human food and bearing in mind the difference in chemical composition between such salmon and the fish caught on the spawning migration, it was deemed advisable to extend the study of salmon decomposition, Hunter (4) (5) (6) (7), to include a study of spoilage in such fish.

Experimental Work

In order to compare the decomposition of the salmon from the hatchery with the decomposition of migrating salmon caught on the spawning migration, two experiments were first conducted with pink or humpback salmon (*Oncorhynchus gorbuscha*) which were in prime condition when taken from a fish trap on Puget Sound. Early morning trips were made to the trap to observe the catching of the salmon to be used in the experiments. The salmon selected were immediately transported to the location where they were to be held and were placed in a box without ice. A thermo-

graph was placed in the box with the fish in order to record the temperature to which the fish were subjected during the experiment. One salmon was immediately taken to the laboratory to be examined bacteriologically and its physical condition noted. Each morning during the following six days similar examinations of the remaining salmon were made. At the end of the six-day period the salmon were in such an advanced stage of decomposition that the experiment was terminated. These experiments were conducted during August and early September. In the first experiment the temperature varied between 49 degrees Fahr. and 62 degrees Fahr., and in the second experiment the minimum and maximum temperatures were 53 degrees Fahr. and 64 degrees Fahr.

In late September and early October two similar experiments were conducted with pink or humpback salmon (*O. gorbuscha*) which had completed the spawning migration and had reached their spawning grounds in the Green River. Through the courtesy of the Washington State Fisheries Commission, a number of these salmon were obtained from the fish hatchery on the Green River near Auburn, Washington. The salmon were taken from the water alive and then held for six days in the same manner as were the migrating salmon caught in Puget Sound. Daily bacteriological and physical examinations were made. During the first experiment with the hatchery salmon the temperature varied between 47 degrees Fahr. and 54 degrees Fahr. and during the second experiment between 49 degrees Fahr. and 58 degrees Fahr.

Results of Experimental Work

The physical condition of decomposing migrating humpback salmon from Puget Sound has been described in a previous report, Hunter (4). The decomposing migrating salmon from Puget Sound used in the experiments here reported did not differ materially from those described in that report.

Decomposing humpback salmon taken from the hatchery present a somewhat different appearance. These salmon, during the spawning run, have

undergone such physical changes that they are hardly recognizable as the same species of fish. The skin has become thick, somewhat tough, and slimy, with characteristic discolorations and scars; the nose of the male salmon has developed a decided hook and the hump on the back, from which such fish derive their common name, has become very pronounced. The flesh has lost most of its color and its fat. It is soft, colorless, and watery and even when fresh has a rank, swampy odor not unlike that of dirty stagnant water. The viscera of such salmon have atrophied to some extent.

As such salmon decompose this peculiar odor of the flesh becomes more pronounced until it is finally superseded by an odor of putrescence. The odor of these putrid salmon, however, is not exactly like the odor of putrid salmon of the same species caught in Puget Sound when migrating. The odor of the former is characteristic and easily distinguished. In the first experiment with salmon from the hatchery spoilage did not occur as rapidly as in the experiments with the migrating salmon. The temperature in this experiment was only slightly lower than that in the experiments with the migrating salmon and the difference in temperature does not seem great enough to explain the difference in the rate of spoilage. Although the odor of the hatchery fish from the very beginning of the experiment was abnormal, it was not until the fifth day that any appreciable putrid odor was noted. In the second experiment spoilage took place somewhat sooner and in three days the salmon were judged to be decidedly stale. From the third to the sixth day the decomposition was rapid.

Differences Between Migrating and Hatchery Salmon

To determine whether the difference in the decomposition between the migrating salmon from Puget Sound and the hatchery salmon would be explained by the number of bacteria present and the nature of the bacterial flora, total counts of bacteria were made from the gills, the flesh of the back, the flesh of the belly, the pyloric ceca, the stomach, and intestines. The technic used

(1) Greene, C. H. 1919. Changes in nitrogenous extractives in the muscular tissue of the king salmon during the fast of spawning migration. In *J. Biol. Chem.*, 39: 457.

(2) Greene, C. W. 1919. Biochemical changes in the muscular tissue of king salmon during the fast of spawning migration. In *J. Biol. Chem.*, 39: 435.

(3) ———. 1921. Carbohydrate content of the king salmon tissues during the spawning migration. In *J. Biol. Chem.*, 48: 429.

The writer wishes to express thanks to Dr. Charles Thom for valuable criticism and suggestions.

(4) Hunter, Albert C. 1920. Bacterial decomposition of salmon. In *J. Bae.*, 5: 353-361.

(5) ———. 1920. Bacterial groups in decomposing salmon. In *J. Bae.*, 5: 543-552.

(6) ———. 1922. The sources and characteristics of the bacteria in decomposing salmon. In *J. Bae.*, 7: 85-109.

(7) ———. 1922. Decomposition of "fecdy" salmon. In *Am. J. Hygiene*.

in obtaining the total counts was the same as described in previous reports Hunter (4) (7). Anaerobic cultures were also made from material from each of the above sources. The numbers of bacteria present in the flesh of the back and of the belly are given in Tables I and II.

Total Count of Bacteria

Since the numbers of bacteria found in the gills of the salmon were de-

pendent on the amount of inoculum, the fish received from its environment, they so varied with individual fish that they were of little significance and, therefore, are not given here. The highest count obtained from the gills of salmon which had been out of water six days was 3,600,000,000 per gram. In one experiment with the hatchery salmon the gills of a salmon taken directly from the water contained a large number of yeasts. Molds were frequently found in the gills of the salmon from the hatchery.

TABLE I.—Number of bacteria in flesh of back of decomposing salmon				
—Puget Sound migrating salmon—		—Green River hatchery salmon—		
Time out of water	1st experiment	2d experiment	1st experiment	2d experiment
Hours	Per gram	Per gram	Per gram	Per gram
3	Sterile	3,500	Sterile	1,090
24	8,200	136,000	1,430	81,000
48	510,000	12,960,000	70,000	1,020,000
72	9,500,000	26,000,000	79,000	13,400,000
96	9,000,000	1,740,000	1,800,000	21,400,000
120	76,000,000	313,000,000	6,100,000	314,000,000
144	88,000,000	225,000,000	47,000,000	188,000,000

TABLE II.—Number of bacteria in flesh of belly of decomposing salmon				
—Puget Sound migrating salmon—		—Green River hatchery salmon—		
Time out of water	1st experiment	2d experiment	1st experiment	2d experiment
Hours	Per gram	Per gram	Per gram	Per gram
3	1,370	5,000	2,400	1,700
24	25,000	41,000	4,300	1,680,000
48	2,310,000	820,000	137,000	3,550,000
72	8,100,000	131,200,000	1,100,000	88,000,000
96	5,600,000	360,000	1,520,000	48,000,000
120	6,000,000	9,600,000	7,800,000	150,000,000
144	26,000,000	2,300,000	19,000,000	262,000,000

Although the total counts of bacteria in the pyloric ceca, stomach, and intestines are interesting, they do not have a very great significance in connection with the decomposition of the ordinarily edible portions of the salmon, that is, the muscular tissue. Therefore, these counts are not given in this paper. The decomposing gills and viscera contribute largely to the foul odors by which the condition of a fish is judged and it is of interest to note that in six days the total count from the pyloric ceca was as high as 30,000,000 per gram, from the stomach of one salmon as high as 133,000,000 per gram, and from the intestines of the same fish 202,000,000 per gram. In the viscera of several salmon from the hatchery large numbers of yeasts were found. Yeasts were very rarely, if ever, found in salmon from Puget Sound.

bacteria in the belly tissue of the salmon from the hatchery in many cases exceeded the numbers from the belly of the migrating fish on corresponding days. It is, therefore, improbable that any difference in the rate of decomposition of those two groups of salmon was due to larger or smaller numbers of bacteria present in one group than in the other.

Study of the Cultures

From the plates made from the material from the Puget Sound salmon 138 aerobic cultures were selected for study and 89 aerobic cultures were obtained from the salmon from the hatchery. From the agar shake cultures 10 anaerobic cultures were obtained from Puget Sound salmon and 6 anaerobic cultures were collected from the hatchery salmon. Eight samples of water were collected from Puget Sound and from the Green River near the fish hatchery. From these water samples 25 aerobic cultures were selected for comparison with the organisms isolated from the decomposing salmon. In selecting the colonies effort was made to obtain all the different organisms occurring, in order that the number collected might be representative of the bacterial flora of the decomposing salmon. A large number of duplicate cultures were thus obtained. The cultures from each group of salmon and from water have been kept separate and studied in order to

determine whether or not the same bacteria were to be found in the three sources.

From their morphology and from certain cultural reactions the duplicates were first eliminated. In this way the 138 cultures from Puget Sound salmon were reduced to 23 cultures which were considered to be distinct species. The 89 cultures from the hatchery salmon were reduced to 17 and after eliminating the duplicates from the 25 cultures from water there remained 9 cultures to be studied and identified. Of the original 10 anaerobic cultures from Puget Sound salmon there were obtained 3 distinct organisms and from the original 6 anaerobic cultures from hatchery salmon 3 were also reserved for further study.

In studying the aerobic bacteria their morphology and the following reactions were noted: Reaction to Gram stain; growth on agar slant; gelatin liquefaction; acid and gas production in glucose, lactose, and sucrose broths; indole production in tryptophane broth; action on litmus milk; motility; nitrate reduction; growth on potato; and methyl red and Voges-Proskauer reactions. In addition, each organism was inoculated into a specially prepared fish broth which has been described in previous reports, Hunter (5) (6), in order to determine the power of each organism to produce foul odors or indole from fish. Whenever possible the aerobic bacteria were identified to type, but the inadequate descriptions in the literature make it impossible to identify many of the cultures collected. The object was to compare the bacterial flora from the two groups of decomposing salmon rather than to identify the organisms, although identification is desirable, if possible.

In studying the anaerobic cultures collected only such tests have been made as would make it possible to determine whether or not these organisms occurred in both groups of decomposing fish. Their morphology and spore formation, together with their proteolytic power and their reaction in milk, glucose agar, liver agar, and gelatin, have been noted. Cultures of the anaerobes studied were also fed to guinea pigs to test their pathogenicity. None of the cultures tested was pathogenic.

Comparing the Cultures

From the data collected it was possible to determine that 10 of the 23 aerobic cultures representing the bac-

TABLE III.—Anaerobic bacteria isolated from decomposing salmon								
No. of culture	Puget Sound salmon	Hatchery salmon	Morphology	Motility	Liver agar	Milk	Glucose agar	Gelatin liquefaction
825	Gills, back		Slender rods. Spore subterminal. Rods not swollen at sporulation.	+	No gas. Fecal odor.	No change.	No gas. Fecal odor.	+
828	Gills, stomach	Gills, stomach	Large rods. Subterminal spore. Spores oval.	+	Gas. Very foul.	Peptonized. Foul.	Acid. Gas.	+
829	Gills, back Stomach, intestines	Gills, back	Medium-size rods. Spore subterminal. Spores small and round.	+	Gas.	No change.	Acid. Gas.	O
876		Gills	Slender, thread-like rods. Spore terminal. Spores round.	+	Gas. Foul.	Coagulated. Peptonized. Foul.	Acid. Gas.	+

terial flora of the Puget Sound salmon were identical with 10 of the 17 cultures isolated from decomposing salmon from the hatchery. In other words, 43.5 per cent of the cultures collected from Puget Sound salmon and 58.8 per cent of the organisms from the hatchery salmon were found to check as identical organisms. Of the 9 cultures from water 6, or 66.7 per cent, were found to be identical with cultures isolated from one or both groups of decomposing salmon. In regard to the anaerobic cultures collected, two of the three cultures from each group of decomposing salmon were found to be identical. One anaerobe isolated from Puget Sound salmon could not be found in the salmon from the hatchery and

hatchery salmon and which produced abnormal odors in fish medium.

Fish-Decomposing Bacteria

Among the fish-decomposing bacteria which were found in both groups of salmon were *Bact. cloacae*, *Ps. fluorescens*, *Bact. aerogenes*, *Bact. coli*, *Bact. communior*, white staphylococci, yellow staphylococci, flesh-colored rods which have been described previously, Hunter (6), and a sporulating anaerobe. Two organisms, *Proteus vulgaris* and a sporulating anaerobe (No. 856), were isolated only from the hatchery salmon. These two organisms decomposed fish protein rapidly. On the other hand, a sporulating anaerobe (No. 825) was isolated only from Puget Sound salmon. This or-

rapidly than the former. With the exception of *Proteus vulgaris* the bacterial flora responsible for the spoilage is practically the same in both groups of salmon.

It is of interest to summarize here the results of the several investigations of decomposition of salmon. From a previous study of decomposing "feedy" salmon, Hunter (7), it was learned that in such fish autolysis accompanies bacterial decomposition. Mature salmon caught on the spawning migration and allowed to decompose are subjected to the action of aerobic and anaerobic sea-water and soil bacteria which bring about spoilage of the fish, Hunter (5), (6).

TABLE IV.—Summary of bacteria from decomposing salmon isolated from more than one source.

No. of culture.	Puget Sound salmon.	Hatchery salmon	Water.	Type.
620	Gills, back,	Gills, stomach,	Green River.	<i>Bact. cloacae</i> .
776	belly, stomach.	intestines.		
W19				
675	Gills, back, belly,	Gills, back.		<i>Ps. fluorescens</i> .
750	ceca, stomach, intestines.			
635	Gills, back,	Gills, ceca,	Puget Sound,	Staphylococci.
743	belly, ceca, stomach,	stomach, intestines.	Green River.	
W16	intestines.			
666	Gills, back,	Gills, back,		Flesh-colored
782	ceca, stomach.	ceca, stomach.		bacilli.
738		Gills, back, belly,	Green River.	<i>Proteus vulgaris</i> .
W21c		ceca, stomach, intestines.		
713	Intestines.	Gills, back, ceca,	Puget Sound,	<i>Bact. aerogenes</i> .
760		stomach, belly, intestines	Green River.	
W15				
718	Stomach.	Ceca.	Puget Sound.	Yellow staphylococci.
753				
W16A				
815	Back.	Gills, ceca, back,		<i>Bact. coli</i> .
		intestines.		
795				<i>Bact. communior</i> .
818	Back, stomach,	Gills, belly,		
850	ceca.	stomach.		
824	Gills, back,	Back, ceca,		Streptococci.
855	ceca, intestines.	intestines.		
830	Back, ceca,	Gills, belly.		Streptococci.
848	stomach, intestines.			
757		Gills, back,	Green River.	Unidentified bacilli.
		intestines.		
W21				
828	Gills, stomach.	Gills, stomach.		Sporulating anaerobe.
841				
829	Gills, back, belly,	Gills, back.		Sporulating anaerobe.
857	stomach, intestines.			

likewise one anaerobe isolated from hatchery salmon could not be found in the Puget Sound salmon. Since the four anaerobic cultures studied have not been described in previous reports on this subject, the data obtained regarding them are given in Table III.

A summary of the 14 cultures isolated from more than one source is given in Table IV.

Since the object of this investigation was to determine whether or not the bacteria causing spoilage in the two groups of salmon were identical, particular attention was paid to the ability of the organisms isolated to produce foul odors or indole in fish medium. It was found that 15 of the 26 cultures isolated from the Puget Sound salmon produced abnormal odors in such a medium, ranging from odors termed "off" to putrid and foul. Of the 20 cultures from the hatchery salmon 14 produced abnormal odors in fish medium. After identifying cultures as far as possible and after carefully checking the cultures which were identical from the two groups, it was found that of the 15 fish-decomposing bacteria from Puget Sound salmon nine, or 60 per cent, were identical with nine, or 64.3 per cent, of the 14 cultures which were isolated from the

ganism produced in fish medium a particularly offensive foul odor.

Although from the data collected it is not possible to draw positive conclusions, it seems improbable that the difference in the type of spoilage in these two groups of salmon is due to the difference in the bacterial flora. It seems more probable that the difference in the type of spoilage may be explained by the difference in the chemical composition of the muscular tissue of the two groups of salmon. Some unpublished data have indicated that the fat content of the salmon is in some way correlated with the rate and type of spoilage. It has been observed that those parts of the fish which contain the most fat decompose rapidly, with the production of foul odors. From the chemical analyses of the flesh of the two groups of salmon it is apparent that two different mediums are supplied or the growth of the bacteria responsible for the spoilage and as a result the rate and type of spoilage of the two groups are different. The fact that, in addition to the other organisms, *Proteus vulgaris* was found in the hatchery salmon and not in the Puget Sound salmon does not explain the difference in spoilage, since the latter group spoiled more

Summary

1.—In a study of the spoilage of humpback salmon caught on the spawning migration in Puget Sound and of humpback salmon taken from the spawning grounds of the Green River it was found that a somewhat different rate and a different type of spoilage takes place in the two groups.

2.—The difference in the total numbers of bacteria in the gills, in the flesh of the back and belly, in the pyloric ceca, in the stomach, and in the intestines of the two groups of salmon was not great enough to explain the difference in the rate of spoilage.

3.—A study of the aerobic and anaerobic organisms representing the bacterial flora of these decomposing salmon indicates that practically the same bacteria are responsible for the decomposition of both groups of salmon.

4.—In addition to the bacteria previously described, Hunter (5) (6), as responsible for the decomposition of salmon, several sporulating anaerobes were isolated from the decomposing fish.

5.—It is probable that the difference in the rate and type of spoilage in the two groups of salmon is due to a considerable difference in chemical composition of the fish rather than to any appreciable difference in bacterial flora.

Spanish Green Olives

Their Cultivation, Curing and Qualities as a Food Product

THE flavor of a green olive when plucked is not one that wins it favor. It is a tough-skinned, hard fruit, extremely bitter. This bitterness is due to the tannin in the skin and has to be processed out. No olive either green or ripe is palatable when it comes from the tree.

Spanish green olives (really they are about two-thirds ripe when plucked) are cured in concrete tub-shaped vats with what is called a cooking solution. This takes from eight to ten hours, depending upon the length of time that has elapsed since the fruit has been picked as well as upon climatic and soil conditions. The flavor of the olive hinges largely upon the curing process, and naturally each curer has some curing secrets which he refuses absolutely to give away.

Curing changes the olives from a light to a dark green. After a thorough washing they are placed in large wooden casks, with a brine of pure salt and water and allowed to ferment for six or seven weeks under the hot Sevillian sun. Gases are discharged and the fruit becomes tender and crisp and acquires the delightful flavor peculiar to the bottled green olives purchased

stuffed olives are not only eatable "as is" but may be used in numerous delicious dishes.

According to the United States Department of Agriculture, green olives



Hogsheads of green olives near Seville, Spain

contain no less than 975 calories per pound, compared with tenderloin of pork which contains 900 calories; lake trout and boiled eggs, 765 each; cottage cheese, 510; parsnips, 300; string beans, 195; onions, 225, and spinach, 110. Even cream, has but 910 calories—65 less than the green olive. Albert E. Leach, author of "Food Inspection and Analyses," gives the number of calories of the green olive as 1400, citing Bulletin No. 28, of the Bureau of Chemistry, as his authority, which places green olives much higher in the list of foods.

Another interesting point about the green olive is that it contains a higher percentage of fat per pound than any of the foods listed above. According to the same authority, the green olive contains 21 per cent of fat, compared with 18 per cent in cream.

This is explained by the fact that the only perfect fats are cottonseed oil, refined lard and olive oil, and that the green olive of Seville, Spain, is cured in a way that allows the pulp to retain a large percentage of its natural oil, the curing process penetrating only to a slight depth.

Regulations for Enforcement of Food Act Revised

The Department of Agriculture has just issued revised rules and regulations for the enforcement of the Federal Food and Drugs Act. The new code contains but thirty-one regulations, against the forty regulations which were originally adopted. A few of the original regulations have been dropped, several new regulations have been added and the numerical order has been changed. In addition the pamphlet contains the Food and Drugs Act of June 30, 1906, and its amendments.

Public Health Association to Meet in Cleveland

The first annual meeting of the American Public Health Association will be held in Cleveland, Oct. 16 to 19.

According to the American Journal of Public Health matters connected with the reorganization of the association will occupy a large place on the program.

The proposed program of the section on Food and Drugs follows:

Food and Drugs

Address of Chairman, R. E. Doolittle, Bureau of Chemistry, U. S. Dept. of Agriculture.

A New Method of Transporting Milk from the Country to the City (Illustrated), James P. Kilecourse, Chief, Food Inspection Bureau, Dept. of Health, Chicago, Ill.

The Present Status of Glandular Therapy (Illustrated), Louis Klein, M.D., Parke, Davis & Company, Detroit, Mich.

Important Considerations in the Relation of Food to Disease, Committee on Relations of Food to Disease, J. C. Geiger, M.D., U. S. Public Health Service, Chairman.

Report of Committee on Problems of Canning, Wm. D. Bigelow, Ph.D., Chief Chemist, National Canners Association, Washington, D. C., Chairman.

Character of "Moonshine" Liquors, Roy A. Haynes, Federal Prohibition Commissioner, Washington, D. C.

The History of Cold Storage, Committee on Cold Storage, Peter H. Bryce, M.D., Ottawa, Canada, Chairman.

The Place of Proteins in the Diet in the Light of the Newer Knowledge of Nutrition, H. H. Mitchel, Ph.D., Asst. Professor of Animal Nutrition, University of Illinois.

The Present Status of Our Knowledge of Vitamines, Committee on Nutritional Problems, Henry C. Sherman, Ph.D., Professor of Food Chemistry, Columbia University, Chairman.

The European Food Deficiency and Its Effect on Public Health. (Speaker will be announced later.)

Report of Committee on Drugs and Nostriums, Harold J. Knapp, M.D., Chief Diagnostician in Charge of Laboratories, Dept. of Public Welfare, Cleveland, Ohio.

Report of Committee on Habit Forming Drugs, Chas. E. Terry, M.D., Committee on Drug Addictions, New York City.

Effect of Fraudulent and Extravagant Advertisements of Food and Drugs on Public Health. (Speaker will be announced later.)

The Sanitation of Bottled Beverages and Soda Fountain Drinks, James P. Kilecourse, Chief, Food Inspection Bureau, Dept. of Health, Chicago, Ill.

Coffee, Its Origin, Derivation and Physiologic Properties, Prof. Samuel S. Prescott, Dept. of Biology and Public Health, Massachusetts Institute of Technology.

Report of Committee on Preparation, Packing and Transportation of Foods, Fred C. Blanck, State Dept. of Health, Baltimore, Md.

Report of Committee on Retail Distribution and Marketing of Foods, Willard E. Ward, Dept. of Health, Brookline, Mass.

Report of Committee on Meat Inspection, W. A. Lipman, M.D., Swift & Company, U. S. Yards, Chicago, Chairman.



Each olive is plucked by hand and deposited in a cloth lined basket.

in the United States. The dark green color has given way to one of rich golden green.

Bottling is usually done in the United States. Some olives are merely poured into the glass containers, but most stuffed olives and a large percentage of whole fruit are packed carefully by hand. Long wooden tweezers are used to pick up the olives one by one and carefully place each in the bottle.

This firm, briney, crisp fruit is digestible, safe and appetizing. There is a real food packed carefully in these brine-filled glass jars. Green or



Conferees Now Working on Tariff Bill

House and Senate Committee Attempting to Reconcile Difference With
Regard to Schedule

By CLARENCE L. LINZ

From the Washington Bureau of The American Food Journal

THERE has never been a tariff bill which, during its consideration received such universal condemnation as that now before the Senate, declared Senator Jones of New Mexico, recently in a long speech advocating adoption of his amendment to the tariff bill providing that the United States Tariff Commission shall investigate the cost of production of various commodities abroad and at home and recommend to Congress such changes in tariff rates as may be found necessary.

"It is my contention that the manufacturers of the country are not justified in generally insisting upon higher duties than under existing law. It appears that wholesale commodities other than farm products, are now, or were in April of this year, 72 per cent higher than prior to the war.

"There has been much depression in industry in the United States as there has been all over the world. But there is not sufficient evidence to show that any industry in the United States is being seriously affected by reason of importation. Moreover, world prices and conditions are such that the industries are not, and cannot, be menaced by importation.

"Anyone who is familiar with world conditions, including those in the United States, must realize that no benefit may be expected, but in all probability there will be many baneful results from a general upward revision of the existing tariff law. Until the recent strikes we were reading every day of increased activity in substan-

tially all of the manufacturing industries. Unemployment was continually decreasing. This increase, however, was due principally to the increased demands of the American people."

Substitute Valuation Plan Suggested for Tariff Bill

A compromise which would base all ad valorem duties in the tariff bill on the American wholesale selling price of the commodity imported has been suggested by Senator Oddie of Nevada as a substitute both for the foreign valuation adopted by the Senate and the American valuation as provided by the House. Both the Fordney plan for American valuation and the McCumber plan for foreign valuation should be displaced by a method which would fix rates on the basis of the wholesale selling price of the imported article in the American market, declared the Senator in submitting his proposal. This basis, he claimed, would overcome the administrative impracticabilities of the Fordney plan, and would correct the abuses of undervaluation and the unfair competitive advantages which the foreign producer could seize upon should the foreign valuation basis be adopted.

"The advantages of this method," stated Senator Oddie, "may be summed up as follows:

1. All foreign nations, irrespective of the condition of their currencies or their cost of production, will pay an equal amount of duty on similar articles.

2. As only about 12 per cent of our

annual imports are subject to ad valorem duties, and therefore affected by foreign or American valuation, the basing of valuation on the wholesale selling price of foreign articles in the American market would not decrease the bulk of our imports.

3. This method would greatly increase the amount of revenue to the government, because it would make fraudulent invoices useless. Last year, according to the Treasury Department, the customhouses had to advance in value over 6,900 invoices of foreign merchandise.

4. The simplicity of the suggested method of determining a basis of levying duties is obvious.

5. The proposed compromise will make it possible for Congress to write lower rates of duty in the pending bill, and make the determination duty more scientific and accurate.

"The principle which I have outlined in my compromise," concluded the Senator, "will, I believe, meet the expressed wishes of the leading producers in the United States, who need the protection of American laws to enable them to compete with every other country in the world in the American market."

Changes Likely in the Food Schedules

When the conference committee which is working on the tariff bill reaches Schedule 7, dealing with agricultural products and provisions, it will have 214 amendments to deal with, of which some 175 are of real importance, the remainder relating to

changes in the numbers of paragraphs.

In addition to these changes to be made in the food schedule directly, the conferees will also have to settle the basis of valuation on which duties are to be assessed. As many of the food duties are ad valorem, the industry will be materially affected by the decision of the conference committee on this subject.

It is believed that in the long run the foreign valuation, which is now used in assessing duties, will be adopted, but only after Representative Fordney, chairman of the Ways and Means Committee, and leader of the House's representation on the conference committee, has made a determined fight for American valuation, which is provided for in the tariff bill as passed by the House. Should the foreign valuation be adopted it will do much to offset the higher rates which in many instances were substituted by the Senate for the ad valorem duties in the House bill. The basis of valuation, of course, will have no effect upon the specific duties imposed by the measure, which are based on the unit of weight or measure.

In connection with the valuation basis, the conferees will have to determine upon the powers to be conferred upon the President to cope with conditions of unfair competition in importation or sale of imported commodities, retaliatory tariffs, etc. The Senate bill confers wide powers upon him in this respect.

The President's Powers Defined

When it is believed that the duties fixed in the bill do not equalize the difference between the cost of production in this country and the cost abroad, the Tariff Commission is to make an investigation for the purpose of determining the extent of such difference and where the duties are found to be insufficient to cover it the President is authorized to proclaim changes in duties sufficient to do so. He may also reduce duties where it is found that the duty fixed by the bill is too great in view of the differences in costs of production. In no instance, however, may such increase or decrease be more than 50 per cent of the duty fixed by the bill, nor may he transfer an article from the free list to the dutiable schedules, or vice versa, nor

change a specific duty for an ad valorem duty. These provisions would remain in force until July 1, 1924, after which changes could be made only by Congress, as in the past.

The bill as passed by the Senate also provides methods for dealing with cases of unfair methods of competition and unfair acts in the importation of merchandise or its sale in this country, the effect or tendency of which is to destroy or substantially injure an American industry. Whenever such unfair method or act is discovered the President may establish a rate of additional duty, not exceeding 50 nor less than 10 per cent of the value of the merchandise involved.

Retaliation for export duties or restrictions placed by foreign governments upon goods destined for the United States is also provided for. All articles of merchandise imported under such conditions are to be made subject to extra duties which will offset the export duty placed by the foreign government but not to exceed 50 per cent ad valorem or its equivalent, and, in extreme cases, the President is authorized to order an embargo against such imports.

Taxes on Margarin Fell off \$800,000

Internal revenue taxes collected on oleomargarine during the fiscal year ended June 30, last, fell off more than \$800,000 as compared with those of the preceding fiscal year, according to a report which has just been made public by Commissioner of Internal Revenue David Blair. The Commissioner's report shows that \$493,988.70 was collected during the fiscal year 1922 on colored oleomargarine, against \$921,192.25 in 1921, a decrease of \$427,203.55. Uncolored oleomargarine during the fiscal year 1922 paid \$452,774.47 against \$655,427.08 in 1921, a reduction of \$202,652.61. A total of \$1,159,940.69 was collected in special taxes on oleomargarine manufacturers and dealers, against \$1,409,846.02 during the preceding fiscal year, a decrease of \$249,905.33. During the fiscal year also the Bureau of Internal revenue collected \$33,455.56 from adulterated and processed or renovated butter and mixed flour, against \$50,977.37 in 1921, a decline of \$17,521.81.

Total collections from all tax sources during the fiscal year 1922 amounted to \$3,197,451,083, a decrease of \$1,397,905,978 from the collections of 1921, when \$4,595,397,061 was reported. Deducting \$48,134,127 refunded during the year, the net collections were \$3,194,625,411. Most of the reduction in collections was due to decreased income and profit taxes, the 1922 receipts from those sources being \$2,087,946,243, against \$3,228,137,673, a falling off of \$1,140,191,429.

In addition to the taxes above cited, the food industry during the first half of the fiscal year contributed heavily toward the transportation and other taxes which were enforced until January 1, last. During the six months in which these taxes were effective, they returned to the Government \$95,291,894 from freight shipments, \$12,475,868 from express matter, \$58,042,159 for personal transportation, \$5,991,576 from berths and staterooms, and \$28,086,182 for telegraph and long-distance telephone messages, the last named tax being still in force.

The cost of administering the Internal Revenue laws for the fiscal year 1922 was approximately \$41,435,000. On this basis, the cost of collection was \$1.30 per hundred dollars collected, compared with 87 cents per one hundred dollars for the preceding fiscal year. However, more than \$7,000,000 was spent in enforcing the prohibition and narcotic laws and \$650,000 for the Child Labor law, which are not, strictly speaking, revenue measures, so that the actual cost of collection a year was reduced to \$34,262,000 or \$1.07 per hundred dollars collected. On the same basis, the cost of the previous year was 72 cents per hundred dollars. The difference in the relative cost for the two years, it is explained, was due mainly to the very large reduction in revenues, which, however, did not permit of a corresponding reduction in the force necessary for their collection.

Butter Standards Bill is Favorably Reported

A favorable report on the Sterling bill to define butter and to provide a standard therefor has been made to the Senate by the Committee on Agriculture and Forestry. This bill is the same as the bill which is pending before the House of Representatives, on which the House Committee on Agriculture made a favorable report on June 24.

The Senate committee adopted as its own the report of the House committee, adding only that the Senate committee believed that a minimum butter fat content of butter should be definitely established and agreed to the recommendation by the Department of Agriculture that this minimum be 80 per cent. It is pointed out that this requirement accords with the custom of the trade and meets with the general approval of the representatives of the butter industry.

Investigation of Express Rates to Come Soon

It is not likely that the Interstate Commerce Commission will make an extended investigation into express rates until the coal and railroad strikes are settled. Some days ago the investigation was about to be undertaken at the request of numerous shippers in various industries who had pointed out to the commission that while freight rates were reduced 10 per cent recently, express rates were still as high as they had been at any time during and after the war.

EDITORIAL

Importance of Care in Preparing Material for Food Advertising

IT may be safely assumed that no advertisement of our common foodstuffs is entirely without effect, whether for good or ill. This effect may be registered mainly on the subconsciousness of the public or it may be instrumental in bringing about immediate changes in the food habits of any number of individuals. It therefore behooves manufacturers to exercise scrupulous care when sending out material relating to their products.

Food advertisements fall roughly into a half dozen or more groups.

There is the advertisement that makes no claim to the dispensing of dietary information, as for example:

"Wesson Oil: Pure Delicious Vegetable Fat," or

"Armour's Simon Pure Leaf Lard for Frying."

Such advertisements leave the troublesome question of the relative digestibility of vegetables and animal fats to the technician. The housewife, seeking a vegetable shortening, knows that in Wesson Oil she may find such a shortening. On the other hand, if she desires lard the statement that Armour & Company put out "pure leaf lard" lingers in her mind and she finds the information helpful.

These advertisements score because of their very restraint.

Then we have the advertisement which, without touching upon the place occupied by the product in the dietary, dispenses information that indirectly calls attention to the wholesomeness of the food under consideration.

When we read, for example, that "A Heinz Kitchen Is a Pleasant Place," when these words are surrounded by a border of cheery nasturtiums, depending from a glowing window box, we at once visualize that kitchen as being one where order and cleanliness and beauty prevail. Products from such a kitchen are already well along the way that leads to complete digestion.

Next, when Libby, McNeill & Libby show us "Four New Ways to Fill the Lunch Box," or the Association of Pineapple Growers announces "Treats for Summer Appetites," these manufacturers are giving constructive information sure to prove helpful in the administration of the household.

It is those advertisements that dip into dietetics, however, that present the most complicated problem. Unquestionably the food advertisement is one important avenue along which valuable information may travel to the consumer. The opportunity for public service is so great in this field that The American Food Journal urges manufacturers to study it carefully.

Sometimes the most unpretentious advertisement carries a needed lesson; as, for example, when Aunt Jemima says smilingly, "Pancakes is good fo' chillern—dependin' on de pancakes an' how dey's cooked," she has voiced a great truth, one that is repeatedly stated by teachers of cookery.

When the Sun-Maid Raisin Growers tell the housewife that "Raisins Make 'A New Dish' of Oatmeal," and then proceed to tell how to serve this combination, featuring the value of oatmeal as well as of raisins, they are helping dietitians "put across" something for which they have labored for years; that is, the teaching of cereal values to children who "do not like mush." This is true scientific instruction and good advertising to boot.

We have purposely left to the last the consideration of those advertisements that unconsciously but none the less

certainly do harm by the mere statement of half truths.

In this group we find advertisements employing the terminology of the laboratory, the writers assuming the mantles of the scientists, borrowing their phraseology, while possessing but a tithe of their background of scientific knowledge.

Not for one moment do we feel that such advertisements are deliberately misleading. It is fatally easy to adopt certain scientific phrases, without in the least understanding their significance.

A Society for Promotion of Accurate Information Among Food Advertisers would accomplish much for all concerned.

To further illustrate the point: the statement that any food is "Four times more effective than any other food" is entirely misleading, although not in any sense insincerely stated.

No one food can be said to be "more effective" than any other one food. Isolated statements are dangerous as limiting the meaning of the phrase and the truth concerning the food in question. Facts about food should be considered relatively as well as individually.

Another statement to the effect that the use of a certain cereal product three times a day constitutes a good health insurance policy is more than misleading, it is bad dietetics. Such advice goes directly contrary to the principles employed when planning the vitally necessary "mixed diet."

Again, to announce that milk is a "complete food" or a "perfect food" is sure to lead to misconceptions. No food is either perfect or complete and vitally necessary to growth as is milk, these statements are not true.

To be "complete" a food must supply all the bodily needs in sufficient quantities to maintain life and no one could digest milk in sufficient quantities to accomplish this.

So let the progressive food manufacturer be alive to his opportunities. It is both possible and worth while to build food advertising on foundations so steady, to exercise such scrupulous care in preparing copy, submitting it to those who are qualified as scientists to pass judgment, and in short, to so direct the entire matter that results will be directly beneficial to public welfare.

Looking Forward in the Field of Food Manufacture

THE inspiration implied by the words a "fresh start" holds good in the field of food manufacture as in all others.

The autumn is a time for looking backward that we may build on our mistakes firmer structures for the future; it is a time for looking forward that we may exchange experiences, profiting by the advice of our co-workers, passing on to them all possible help.

So it is with the food manufacturer.

The Association of American Dairy, Food and Drug Officials, meeting in Kansas City during the first week of October, will discuss many of the most important questions of the moment, such as uniform food laws, food poisoning, state drug laws, etc.

The American Specialty Manufacturers' Association, meeting at Atlantic City in November, will take up matters equally important to the public and to the trade.

These two powerful organizations, working shoulder to shoulder have a potential power impossible to estimate. Pre-

(Concluded on Page 31)

Use of Vacuum Pan For Fruit Products

(Continued from Page 10)

the preheating kettles and the product is then processed in accordance with the usual methods.

An enameled vacuum pan has also been found to possess remarkable advantages in the preparation of fruit sirups and as a matter of fact has enabled the production of satisfactory sirups from some varieties of fruit juices which it has been impossible to concentrate satisfactorily heretofore. When manufacturing some types of sirups, as for instance the concentration of grape juice containing added sugar, so as to produce a soda fountain sirup, it is a matter of concentrating the juice under vacuum down to 2 or 3 to 1. This can be done according to the same general procedure as used for vacuum jelly manufacture heretofore described.

In the case of grapefruit or orange sirups, the juice is reduced 6 or 8 to 1 with the idea of making a highly concentrated sirup which can be shipped economically and later re-diluted to form a grapefruit or orange drink. These juices have rather delicate flavors and colors. They must be kept away from contact with all metal. The heating period must not be too long. No portion of the juice must be overheated at any stage of the operation.

For such work the pan with double jacket has been designed as illustrated in the accompanying line drawing (figure III). In its general operating features this pan is very similar to the jam and jelly vacuum pan. The main difference lies in the double jacket. When using such a pan, the unit is filled to the high jacket level with juice. As the boiling continues the liquid level recedes until the foam no longer covers the heating wall. The steam in the high jacket is then turned off and the concentration carried to its final state using only the bottom jacket. An enameled vacuum pan operated in this way will produce high quality sirups from juices such as orange juice which is usually considered an exceedingly difficult problem.

Still another function performed by the pan in the preparation of fruit flavors. The flavors are first extracted by boiling or treating the fruit skins or whole fruit with water or alcoholic solutions. The extract must then be concentrated to a much smaller volume than the original liquid. An enameled vacuum pan with double jacket or with only the bottom jacket is suitable for such work. The nature of the extract frequently produces a product quite high in acid content. In order to make a product of the best quality

an enameled vacuum pan is required because of its acid resistance as well as to avoid too intensive heating which might darken the color.

A glass enameled vacuum pan presents many new and advantageous features for the fruit products industry. It is a simple pan which can be operated without specially skilled employees, once the system is installed. A jam or jelly made under vacuum has a rich natural color which the open kettle system cannot produce. The original fruit flavor is present whereas in the open kettle jelly the delicate fruit flavors are largely boiled off and destroyed or overshadowed by sweet caramel like tastes. The absence of metal plays an important part in preserving the fruit flavor. The product has a better jell because the pectin has not been heated to a high temperature. The pan heats very uniformly and does not have to be watched continuously to avoid burning. It is not necessary to cool the finished jam as the product is just at the right temperature for filling. In the case of the manufacture of fruit sirups the enameled vacuum pan presents an acid resistant glass surface which prevents contamination of product or loss of color due to metal. The finished product is stronger and richer in color and will give a more brilliant color on re-dilution. An enameled vacuum pan presents a new processing unit for the fruit products manufacturers which will permit economical production of a finished jam, jelly or fruit sirup of a uniform quality.

Book Reviews

Story of the Historical and Geographical Aspects of Foodstuffs

Food Products from Afar. A Popular Account of Fruits and Other Foodstuffs from Foreign Lands. By E. H. S. Bailey, Ph.D., Professor of Chemistry, University of Kansas, and Herbert S. Bailey, A.B., B.S., Chief Chemist, The Southern Cotton Oil Company. Illus. The Century Co., New York.

Beginning with a clear statement of America's food problem the authors of this timely study show us how important it is for any country to be in large measure independent as to its food supply. That the United States is far from complete independence in this regard may come as a surprise to many. After a careful analysis of the situation, coupled with sound advice concerning crops and markets, the book proceeds to the main body of its

task, the telling in fascinating fashion the "human interest" and romantic sides of the food story.

The origin of many of our common foods is traced; geographical background is sketched in with a sure touch; legends are recounted: historical facts related.

The macaroni of Italy, the nuts of California, olives and cheeses, pomegranates and truffles, millet and dash-keen, sugars, stimulants and sedatives; these are but a few of the foodstuffs studied.

By the time we have journeyed with the authors to Arabia and the Far East, to tropical islands and Oriental cities; when we have "filled our coffee cup from Brazil" and "lived with our Latin-American neighbors," we begin to realize that while we shall always be dependent on our neighbors for certain foods, nevertheless our present thoughtless and haphazard habit of importing foods which we might well raise at home is both wasteful and unnecessary.

The chapter on "What Other People Eat," carries on consistently the plan of the authors, that of broadening our horizon while giving us new light on the local problems of every day.

Helping People to Keep Well

The New Cookery. By Lenna Frances Cooper, Director of the Battle Creek Sanitarium School of Home Economics, Head Dietitian of the Battle Creek Sanitarium. Eighth edition, revised. Illus. The Modern Medicine Publishing Co., Battle Creek, Mich.

"The question of diet," writes Miss Cooper in her preface, "which used to be one to which only physicians and invalids gave thought, is now recognized as one of the important, if not the most important which the average man or woman has to consider."

The present volume is not intended as a book of recipes for the sick, but aims to suggest those foods that make for health, strength, endurance and efficiency. The fact that these same foods may fail of accomplishing such a program if they are subjected to improper preparation is the reason for the book itself.

Not only does Miss Cooper state clearly the proper method for cooking each food, but each recipe gives a table setting forth the food energy value of a portion and of the recipe as a whole.

Practical chapters on Food Values, on The Art of Preparing Foods, descriptions of the various cookery processes, directions for using a gas range and many other helpful features give the book added value.

Dietitians and housewives will unite in welcoming this new edition of a handbook that is probably destined to become a classic in its field.

Food Flavors: Their Source, Composition and Adulteration

Composition of Various Products as Set Forth in Standards of Department of Agriculture

By J. W. SALE and W. W. SKINNER

Chemist in Charge of Water and Beverage Laboratory, U. S. Bureau of Chemistry, and Assistant Chief of Bureau

PART IV

First article published in May; second in June; third in July.

IN Parts I, II and III, dealing with the subject of food flavors of natural origin, we discussed sixty-two individual flavors in alphabetical order, the last one being marjoram. The great majority of the products which have been described and those which follow yield essential oils in which the flavor of the fruit, rhizome, wood, leaf, flower or other part of the plant is present in a highly concentrated form. The term "oil" is, of course, very broad and is applied generally to liquids which are insoluble or nearly so in water, and which are of vegetable, animal or mineral origin. The oils of vegetable origin are usually divided into two classes, namely essential or volatile oils, and the fixed oils. The latter, such as olive oil, peanut oil, and corn oil, are of great importance from a food standpoint, as dressings for food, vehicles in the manufacture of non-alcoholic flavors, etc., but they possess little or no flavor and are entirely different in composition and properties from the essential or volatile oils which are used for flavoring. For example, when the kernels or bitter almonds are ground and pressed cold at a pressure of 350 atmospheres, about 50 per cent of a bland fixed oil is obtained which consists chiefly of the glyceryl ester of oleic acid, and which is used especially for pharmaceutical purposes. When the pressed cake is ground, mixed with water and distilled, an odorous essential oil is obtained which consists chiefly of benzaldehyde. These two oils obtained from the same kernels having nothing in common except that both have the general appearance of oils. Other fruits yielding both fatty or fixed oils and essential or volatile oils are apricot and peach kernels and mustard seeds. Some years ago it was a more or less prevalent custom to apply the term "oil" to solutions of synthetic flavoring chemicals such as the esters of amyl and other alcohols. The resulting products were labeled, apple oil, blackberry oil, currant oil, grape oil, gooseberry, oil, etc. These names were, of course, untrue and misleading as applied to such articles, and the practice has been discontinued since it is illegal under the provisions of the Food and Drugs Act. A continu-

ation of the discussion on individual flavors follows:

63. Musk: Musk is a dried secretion of the male musk deer, an animal usually not over twenty inches high. Two commercial varieties of musk are known as Chinese, Thibet or Tonquin musk, and Russian or Siberian musk. Musk is soft and unctuous, reddish brown in color, and has a strong, penetrating and highly diffusive odor. It has been found adulterated with dried blood, animal membrane, tobacco, and numerous other materials. Musk is employed as a medicine, also in perfumes and cosmetic essences, but only to a limited extent in beverage flavors. The term "artificial musk" is applied to several closely related compounds derived from butyl toluene.

64. Mustard: Both black and white mustard are natives of Europe and are cultivated to a limited extent in America in our gardens. The seed-like fruits are important condimental products. It is an annual herb three to six feet high bearing yellow flowers and slender pods containing spherical seeds. Mustard seed is defined in the United States Department of Agriculture Circular 136 as the seed of *Sinapis alba* L. (white mustard), *Brassica nigra* (L.) Koch (black mustard), *Brassica juncea* Hook f. et Th., or varieties or closely related species of the types of *Brassica nigra* and *Brassica juncea*. Neither white nor black mustard should contain more than five per cent (5%) of total ash, or more than one and five-tenths per cent (1.5%) of ash insoluble in hydrochloric acid. Black mustard (*Brassica nigra*) and *Brassica juncea* yield 0.6 per cent or more of volatile mustard oil calculated as allyl isothiocyanate. The essential oil is obtained by distilling the seeds of the several species of *Brassica*, chiefly *Brassica nigra*, with steam. It is an unpleasant smelling liquid of great pungency, the chief constituent being allyl iso-thiocyanate. Artificial oil of mustard consists of allyl iso-thiocyanate made synthetically. The essential oil is not present in the seeds as such, but is formed in the case of black mustard from potassium myronate in the presence of the ferment myrosin and water. Chinese and Indian oil seeds containing crotonyl iso-thiocyanate have been found as adulterants.

65. Neroli oil: True oil of neroli is obtained chiefly by distilling the fresh flowers of the bitter orange (oil of

Neroli Bigarade) and of the sweet orange (oil of neroli, Portugal, or neroli petals), the former being the principal commercial variety, although the latter is specified in some beverage flavors. The yield of oil—Neroli Bigarade—is from about 0.02 to 0.1 per cent based on the weight of the undried flowers. Approximately one-third of the total oil is dissolved in the distillation water. This flavored water is not processed (cohobated) to recover the oil, but is sold as orange flower water. The commercial oil is slightly fluorescent and is stated to contain 0.45 to 1.1 per cent methyl anthranilate, an ester which is widely employed in the manufacture of imitation grape flavors, for which purpose it is produced synthetically. The fluorescence of the oil is due to the presence of this ester. The composition of the oil (Bigarade) which follows is quoted from a standard text: Hydrocarbons, 35 per cent (pinene, camphene, dipentene, paraffin, C₂₇); Terpene alcohols and their acetates, 47 per cent (1—lilalool, 1—linalyl acetate, d—terpineol, geraniol and nerol, geranyl acetate and neryl acetate); Sesquiterpene compounds, 6 per cent (d—nerolidol); Nitrogen compounds, 0.7 per cent (methyl anthranilate, idol); Acids and phenols, 0.1 per cent (acetic and palmitic acids); other constituents, 11.2 per cent (esters of phenyl acetic acid and benzoic acid, jasmone farnesol, etc.). Oil of neroli is of considerable importance as an ingredient of perfumes and of beverage flavors. An imitation neroli oil can be purchased on the market.

Nutmeg: See Mace and Nutmeg, No. 61.

66. Onion: An essential oil can be obtained to the extent of about 0.05 per cent by distilling the bulb and fresh onion plant. It has an acrid and rather unpleasant odor. It is used like oil of garlic, but not to our knowledge in beverage flavors.

Orange Flower Water: See Neroli, No. 65.

67. Orris Root: Orris root is obtained from several species of *Iris*, sometimes called fleur-de-lis, a plant which is cultivated in the south of Europe for its fleshy root stalks. Orris root is exported also from Morocco and East India. In the process of drying the rhizome develops a violet odor. The yield of essential oil from the rhizome is from 0.1 to 0.2 per cent. The volatile oil is reported as con-

taining a large amount of myristic acid, and its methyl ester, oleic acid, an oleic ester, oleic aldehyde and an odorous constituent termed irone. Orris is important commercially, as it is widely used in the manufacture of perfumes and certain types of beverage flavors, both for its aroma and as a fixative.

Otto of Roses: See Rose, No. 74.

68. Paradise Grains: Grains of Paradise are imported under this name and as Guinea grains and Melegueta or Mallaguetta pepper from West Africa and the West Indies. They are usually used as a condiment. An extract of the seeds is employed to give a hot taste to beverages in the same manner as extracts of red and black peppers.

69. Parsley: The common parsley used for culinary purposes is a hardy biennial, the flowering and fruiting plant being from two to three feet in height. It has been cultivated as a sweet herb from the earliest times. All parts of the plant contain a volatile oil to which the desirable odor of the herb is due. The yield of oil from the seeds is from two to six per cent and it contains pinene and apiol. Parsley is used in garnishing and flavoring foods.

70. Patchouly: This plant is cultivated in the Straits Settlements and in Penang. The oil is of value to the perfume and flavor industries, mainly as a fixative.

Paprika. See Capsicum, No. 19.

Pepper. See Capsicum, No. 19.

71. Peppermint: Peppermint is the leaves and flowering tops of *Mentha piperita* Linne. There are at least fifteen species of the genus *Mentha* of which there are numerous varieties. Peppermint is a perennial herbaceous plant producing stolons. It grows wild in almost all countries of the temperate zone, but the principal commercial supplies of the oil are produced in the United States and Japan. In this country it is cultivated especially in Michigan, Indiana and New York. About 325 pounds of peppermint will usually produce a pound of oil in commercial practice, but the yield varies. Peppermint oil according to the United States Department of Agriculture standard, should contain not less than 50 per cent by weight of menthol and Peppermint oil according to the Uniflavoring extract prepared from oil of peppermint, or from peppermint, or both, and contains not less than three per cent (3%) by volume of oil of peppermint. Large quantities of peppermint oil are used in flavoring beverages and confectionery. Peppermint leaves are frequently adulterated with spearmint leaves prior to distillation of the essential oil.

72. Petit-grain: Petit-grain oil is distilled from the leaves and young shoots of the bitter orange, in the south of France, Algeria, Spain and Paraguay. The oil contains camphene, beta-pinene, di-pentene, limonene, l-linalol, d-a-terpineol, geraniol, esters of linalol and geraniol, a sesquiterpene and methyl anthranilate. Oil of petit-grain citronnier is a fragrant oil distilled from the leaves and twigs of the lemon tree and closely resembles oil

of petit-grain. These oils are used in compounding beverage flavors.

Pimento. See Allspice, No. 1.

73. Prickly Ash Bark (*Xanthoxylum*): Northern prickly ash is a shrub from five to twenty-five feet in height which grows in woods and in moist shady places throughout the northern, middle and western states. Southern prickly ash varies in size from a large bush to a small tree and grows on dry soil in the south and southwest. Both northern and southern prickly ash barks are commercial articles. The fluid extracts are used in medicine, but are of interest to us chiefly in that they are ingredients of a certain type of beverage flavor to which they impart a medicinal taste.

74. Rose: Otto of roses is the volatile oil obtained from the petals of *Rosa damascena* Mill, *R. centifolia* L. or *R. moschata* Herrm. This oil is distilled almost entirely in Bulgaria and France. It is stated that an acre of roses well planted will yield about 100 pounds of flowers every day for three weeks. The composition of otto of rose varies considerably. A typical Bulgarian oil is reported to have the following composition: total alcohols, 68-78 per cent; citronellol, 28-34 per cent; stearoptene, 15-20 per cent. Otto of roses is frequently adulterated with peraniol, citronellol, spermaceti, guaiacum, wood oil, etc. The oil is used in compounding imitation fruit flavors, ginger ale and other beverage flavors.

75. Rosemary: This perfume oil is distilled from the flowering tops of the plant *Rosmarinus officinalis*, chiefly in the south of Europe. The average yield is from 1 to 1.8 per cent. The oil contains pinene, camphene, cineol, camphor, borneol and traces of esters.

Russian Oil of Tar. See Tar.

76. Saffron: Saffron is the dried stigma of *Crocus sativus* L. It should contain not more than 10 per cent of yellow styles and other foreign matter, not more than 14 per cent of volatile matter when dried at 100 deg. C., not more than 6 per cent of total ash nor more than 1 per cent of ash insoluble in hydrochloric acid. The plant, which is a perennial, is cultivated in the temperate countries of Europe, Egypt and Persia. In this country it is cultivated as a flower. Saffron has a peculiar, sweetish, aromatic odor, a warm, pungent, bitter taste, and a rich deep orange color, which it imparts to the saliva when chewed. It is stated to contain about 10 per cent of an essential oil, a glucoside (crocin), sugar and a bitter principle (picro crocin or saffron bitter). It is high priced and frequently adulterated with dyed flowers of other plants.

77. Sage: Sage (*salvia officinalis* L.) is a perennial plant about two feet high with blue flowers, which is widely cultivated in gardens for condimental purposes. Austrian, Italian, French and Greek are commercial varieties of sage. The leaves and twigs of the plant yield 1 to 3 per cent of oil, which contains thujone, camphor, and terpenes. The oil or herb is used in flavoring meats such as sausage.

78. Saint Johns Bread: The carob-tree (so-called from the horn shaped

pods) is a native of Mediterranean countries. The pods, often called locust beans and Saint John's bread, are supposed to have been the food of John the Baptist in the wilderness. They contain a sweet nutritious pulp. When the beans are mashed or cut, and macerated and extracted with water and alcohol, an aromatic tincture is obtained which is used in preparing imitation fruit and other flavors.

79. Sarsaparilla: The term sarsaparilla is derived from two Spanish words, zarza and parilla, which mean a small thorny vine. Sarsaparilla is the dried root of several species of *Smilax* growing in Mexico, Guatemala, and the warm latitudes of South America. The entire root with the rhizome is usually dug up. Jamaica sarsaparilla has been shown to contain a glucoside (sarsaponin), certain other constituents and a mixture of fatty acids. Commercial varieties of the root are known respectively as Mexican, Honduras and Jamaica sarsaparilla. Extract of sarsaparilla is used in medicine and in flavors. It is interesting to note, however, that our standard does not require a soda water flavor labeled sarsaparilla flavor to contain any sarsaparilla. The standards defines sarsaparilla flavor as the water-soluble product prepared with oil of sassafras and methyl salicylate or oil of wintergreen or oil of sweet birch and with or without other essential oils or extract or sarsaparilla. Long usage warrants this definition.

80. Sassafras: This is an indigenous tree growing seventy-five feet high under favorable conditions, and is found throughout the eastern United States, in Canada and in Mexico. The bark of the root is of value in the manufacture of flavors and beverages. An essential oil, oil of sassafras, is distilled from the root bark and the wood in Maryland chiefly, but also in Pennsylvania and New Jersey. The principal constituent of sassafras oil is safrol (about 80 per cent) which is found also in camphor oil. Other constituents of sassafras oil are pinene and phellandrene (10 per cent), dextro camphor (7 per cent), eugenol (0.5 per cent) and probably cadinene (2.5 per cent). Large quantities of the oil are used for soap perfumery, as is also safrol obtained from camphor oil. Sassafras oil is employed in compounding beverage flavors such as sarsaparilla, root beer, birch beer, spruce beer, etc.

81. Savory (Summer Savory): This is the dried leaf and flowering tops of *Satureja hortensis* L., an annual plant resembling thyme in odor and flavor. It is cultivated in our gardens as a culinary herb. An essential oil can be obtained by distillation of the green herb, which contains about 30 per cent of the phenol, carvacrol, together with one or more terpenes. The United States Department of Agriculture standard defines savory extract as the flavoring extract prepared from oil of savory, or from savory, or both, and contains not less than thirty-five hundredths per cent (0.35%) by volume of oil of savory.

(To be continued)

Food Subjects Discussed by Chemists

Papers on Varied Topics Read Before Convention of American Chemical Society

A NUMBER of valuable papers on food subjects were read before the biological and agricultural and food chemistry sections of the American Chemical Society at its annual convention in Pittsburgh, September 4 to 9, inclusive. Abstracts of some of these papers follow.

"Edible Fats in the Baking Industry" was the subject of a paper by Charles A. Glabau. The paper described the various kinds of bakery products in which edible fats are used; told why such fats are added and the manner in which they are introduced into the product; the results obtained by adding graduated quantities of fat to bread doughs; the use of the homogenizer for the purpose of making a homogeneous mixture of the fat, liquid, milk solids and carbohydrates used in dough, and in conclusion tables and photographic views of loaves of bread were presented showing the volume obtained with graduated quantities of edible fats and the distribution of edible fats introduced in the form of an emulsion and in the ordinary way in baking practice.

Robert H. Kerr read a paper on "The Analytical Detection of Rancidity," in which he described the analytical tests used for the recognition of rancidity, the chemical and physical differences between rancid and sweet fats and also gave consideration to the mechanism of rancidity and the changes involved in its development.

The Storage of Eggs

F. C. Cook and J. B. Wilson discussed the "Changes in Hens' Eggs Stored in Water Glass and in Lime Solutions," an abstract of which is as follows:

Strictly fresh and commercial eggs, which were preserved in water glass (1-10, 1-13, and 1-20) and saturated lime solutions. Separate jars of each were stored in the laboratory and in a cellar. At the beginning of the experiment and after various periods samples of the eggs were examined physically, bacteriologically and chemically. Best results were obtained by holding strictly fresh eggs in a 1-10 water glass solution at cellar temperature. Changes of considerable magnitude were found in water, ash, and nitrogen contents of both whites and yolks. Bacteria were not found to be a factor of deterioration. Ammonia nitrogen and acidity of fat proved to be the best indices of decomposition.

"Corn Oil, Its Preparation and Uses," was discussed by A. F. Sievers.

Corn oil, he said, is produced as a by-product in the hominy and corn-starch industries. From eighty to one hundred million pounds are pro-

duced annually, of which about 70 per cent is refined for food purposes.

Corn oil is classed as a semi-drying oil but has poor drying qualities and therefore does not enter largely into the manufacture of paints. It is used in the manufacture of soap and in making its greatest progress, for practically serving the same purposes as cottonseed and peanut oils.

Its physical and chemical properties are similar to cottonseed and soya bean oils. The oil prepared from dry process germs is generally lighter in color and contains less free acid than that made from wet process germs.

Jerome Alexander read a paper on "Milk and Ice Cream as Fatty Foods," in which he said that since milk contains 88 per cent of water the legal 3 per cent fat means 25 per cent of the total solids so that milk is a fatty food, and said further:

When the casein coagulates it mechanically entraps the fat thus forming a greasy curd which is hard to digest. Cows' milk has a low protective ratio, i. e., the ratio of casein to lactalbumin, and therefore readily forms greasy curds unsuitable for the human stomach. Increasing the protective ratio by adding any colloidal protector (gelatine, gum, eggs, etc.) prevents this difficulty, and is of especial importance in ice cream where the fat content is much higher than in milk.

The effect of colloidal protection in artificial milks and cheese is still to be worked out.

"The Use of Frozen Eggs in Mayonnaise," was discussed by S. K. Robinson:

Comparisons between the fresh and frozen eggs were made on batches of mayonnaise. No difference in the product was noticeable, immediately after preparation. Both products were well emulsified and had good body. The following physical tests were then applied; microscopic examination, freezing test, incubation, shaking test, and effect of air and light. Not any of these tests put the frozen egg product at a disadvantage. Mayonnaise made from frozen eggs held well in a warm room for thirty days.

Fats in Evaporated Milk

"Certain Physical and Chemical Requirements of Fats in the Evaporated Milk Industry" was a subject discussed by Harper F. Zoller. An abstract of this paper is as follows:

The evaporation of milk in a vacuum pan at the temperature and pressure under factory operation necessitates the consideration of factors in connection with the constitution and physical make up of fats which are uncommon in all other industries in which fats are used.

The fat should have an iodine absorption number below 30. It must contain a minimum of fatty acid esters which, when hydrolyzed, will yield fatty acids, possessing unusual flavors or

odors (eg. g. arachidic, theobromic, erucic, ricinoleic, etc.). Its "ethyl ester value" should be quite high, preferably, in the purified natural fat, above 12. The content of stearin and pulmitin should not be high enough to raise the melting point above 50 deg. C. It should be a fat which is readily purified and should not therefore contain substance such as phytosterol, sitosterol, alkyl amines, etc. Happily enough, cocoanut oil and palm nut oil which are widely used in the margarin industry because of their availability and physical properties come closer to these requirements than do any of the commercial fats save butter fat. Inasmuch as the margarin industry used cocoanut oil it was but natural that the compound milk industry should chose it. From the standpoint of condensation in the vacuum pan in the presence of the milk, a good grade of cocoanut oil works more admirably than does butter fat itself. The same may be said of palm nut oil. The high iodine number of some butter fats, 28-42, renders it subject to slight rancidification (hydrolysis) in the vacuum pan and subsequent sterilization.

Partially hydrogenated cotton oil may be used providing its iodine number is kept about 30, so that its melting point will not interfere with the pan process.

"Rancidity and a Method for Its Detection," was discussed by H. C. Bashioum and R. J. Noble.

Rancidity of two types, "A" and "B." "A," due to Volatile Fatty Acids. "B," due to Volatile Fatty Acids and Aldehydes.

Rancidity "B" detected and comparatively estimated by means of Schiff's Reagent (Pararosaniline Acetate dissolved in dilute sulphurous acid solution). A 0.5-1.0 per cent solution of the oil in kerosene or preferably benzene is shaken with an equal volume of the reagent in a separatory funnel, continuously or intermittently for 30 minutes. If the oil be rancid, a violet to blue coloration will appear immediately or within a few minutes in the benzene or kerosene layer. The color developed is proportional, within limits, to the degree of rancidity. The test is very delicate and especially suitable for the detection of "B" in cereal products containing small amounts of oil.

Refining Losses in Manufacture of Edible Oils

B. H. Thurman discussed the "Refining Losses in the Manufacture of Edible Oils."

Each step through the refining process was discussed relative to various vegetable oils, cotton, peanut, soya bean and cocoanut. The action of refining materials in removing undesirable products and impurities is the largest source of shrinkage on most oils. Methods for determining and also the percentage of impurities, such as lecitho-proteins and coloring matter

were given, both from laboratory and factory determinations.

There are emulsions formed and broken, which were described in detail, giving some experiences of handling them in the factory. One that is not yet handled successfully and causes loss, should be interesting to the coloidal chemist. Another step in the process illustrated selective absorption by Fuller's earth and carbon black.

Losses due to volatility and solubility were accounted for with averages for different vegetable oils.

Washington Platt and R. S. Fleming of the Merrell-Soule Company, discussed "The Action of Shortening in the Light of the Newer Theories of Surface Phenomena," the following being an abstract:

The following definition of shortening and shortness is used. "Shortening is any fat or fixed oil used as an ingredient in baked products." That material has the greatest shortening power which, when baked in a dough under standard conditions, gives to the product a minimum breaking strength and a minimum crushing strength." No explanation has been previously put forward to account for the action of shortening in baked products, or to account for the well known difference between the shortening power of different fats. The present study is confined to such products as sugar cookies.

A cookie is seen to be essentially a mass of gluten and starch, soaked in a concentrated sugar solution. Shortening is the only material in dough not soluble in water or wetted by it. Shortening brings about its effects by extending throughout this dough or cake in layers which separate the particles of the dough or cake from one another and prevent the formation of a continuous solid mass.

When care is taken to prevent change of the specimen on mounting, the fat may be seen microscopically in the dough and cake, extending in films around the starch grains.

An investigation was made to determine the cause of the difference between the shortening power of the common fats. Viscosity, Surface Tension, vs. Air and Melting Point considered alone, are seen to be of minor importance. Plasticity is seen to be a more important factor.

The work of Langmuir and of Harkins on phenomena at liquid interfaces, is correlated with the differences in shortening power. It is demonstrated that for fats that are not plastic in the dough, the relative shortening power of the commonly used fats is given accurately by their percentage content of unsaturated glycerides. For plastic fats, the shortening power is determined both by the plasticity and by the unsaturated glyceride content.

The close connection between the action of shortenings and of lubricants is emphasized.

"The Influence of Light on the Synthesis of Vitamine A in Sprouting White and Yellow Corn," was discussed by J. S. Hughes and W. R. Horlacker.

A sample of yellow corn having a high vitamine A content and one of white corn having a low vitamine A content were sprouted both in the light and dark.

The vitamine A content of the sprouts not including the grain was tested by the usual feeding test with rats.

The sprouts from both the white and yellow corn grown in the light had a high vitamine A content. The sprouts from neither the white nor yellow corn grown in the dark contained much of this vitamine.

The results indicate that the vitamine A content of the seed has very little influence on the vitamine A content of the sprout but that the sunlight is an important factor in the synthesis of vitamine A.

Suggestions in Technic Vitamine Work

"Suggestions in Technic Vitamine Work," was discussed by Edward F. Kohman, who said:

We hear much about the destruction of vitamins by the action of heat and oxidation. Vitamine A is said to be especially sensitive to oxidation, and vitamine C to both heat and oxidation. But with the exception of a very few instances, the experiments from which such conclusions are derived do not justify an assumption as to whether the destruction noted was really the result of heat or oxidation. No reference has been found in any experiments relating to the effect of heat and oxidation in which the oxygen content of the product or of the cooking water has been taken into account.

Practically all fruits contain more or less atmospheric oxygen both in solution and mechanically trapped. To eliminate this, a high vacuum is not sufficient unless the container is jarred by rather sharp blows. More important is the oxygen held in solution by the water used for cooking. This cannot be removed with less than five minutes boiling, nor is a vacuum effective unless the container is jarred. For temperatures less than boiling, hours are required, and during this time the dissolved oxygen would be more available for oxidation of the vitamine than the oxygen of the air which is in contact with the surface. Air-free water dissolves air very readily and therefore must be kept out of contact with air until used.

Composition of Soya Bean Oil

"The Chemical Composition of Soya Bean Oil," was the subject of Walter F. Baughmann and George S. Jamieson. The abstract follows:

The oil was pressed from mammoth yellow variety of soya beans by an expeller. Specific gravity, 25 deg./25 deg., .9203; refractive index, 20 deg., 1.4736; iodine number (Hanus), 128.0; saponification value, 189.5; unsaponifiable matter, 0.6 per cent; saturated acids, 11.5 per cent; unsaturated acids, 83.5 per cent; iodine numbers of unsaturated acids, 148.7. Bromine addition derivatives of unsaturated acids were made and analyzed. The methyl esters of saturated acids were fractionally distilled under diminished pressure and fractions analyzed. Oil was found to consist of glycerides of following acids: linolenic, 2.3 per cent; linolic, 51.5 per cent; oleic, 33.4 per cent; palmitic, 6.8 per cent; stearic, 4.4 per cent; arachidic, 0.7 per cent; lignoceric, 0.1 per cent.

The same authors had two other papers, one was on "The Chemical Com-

position of Sunflower Seed Oil," of which the following is an abstract:

Sunflower seed oil is used in various foreign countries as a food oil and in making butter substitutes, soaps, varnishes and enamels. Several million pounds of the seed are produced annually in the United States for poultry feed and the production could be greatly increased. The whole seed contains 27 per cent to 30 per cent oil and the kernels which constitute about 53 per cent of the seed contain approximately 53 per cent oil. It is a drying oil. S. G. 25/25 is 0.9193; refractive index, 20 deg., 1.4736; iodine number (Hanus), 130.8; saponification number, 188.0; unsaponifiable matter, 1.2 per cent; saturated acids, 7.1 per cent; unsaturated acids, 86.6 per cent; iodine number of unsaturated acids, 147.9. The oil consists of glycerides of the following acids: oleic, 33.4 per cent; linolic, 57.5 per cent; palmitic, 3.5 per cent; stearic, 2.9 per cent; arachidic, 0.6 per cent; lignoceric, 0.4 per cent.

They also discussed the "Oil, Fat and Wax Laboratory, Bureau of Chemistry, Department of Agriculture, and Its Relations to the Vegetable Oil and Fat Industry." The abstract follows:

An account of the vegetable oil and fat investigations conducted by this laboratory, discussed under three heads: Olive oil and its substitutes, supply of fats and oils during the war, and fundamental investigations. It is almost impossible to get adulterated olive oil past the barriers at our ports. The small amount of adulterated oil on the market is sophisticated in this country by small firms. During the war our imports of fats and oils exceeded our exports. The first complete survey of the fat and oil industry was made. It was not possible to increase production of cottonseed oil but production and importation of peanut and soya bean oils were greatly increased. Many new possible sources of oil were investigated. The chemical composition of some of the vegetable oils have been determined. A representative number of authentic samples of cottonseed and peanut oils have been analyzed to establish the limits of variations in the chemical and physical characteristics of these two oils. A new method has been developed for determining the amount of neutral oil in crude oils. Work is in progress on the isolation and identification of all constituents of cottonseed oil and their effect on refining.

"Studies of the Vitamine Potency of Cod Liver Oils," and "The Effect of Season on the Vitamine Potency of Cod Liver Oil—Spring Oil," were discussed by Arthur D. Holmes, his paper being one of a series reporting experiments undertaken to determine the vitamine "A" potency of cod liver oils obtained at different seasons of the year. To obtain oils of known origin the author personally obtained oils, cod livers from cod fish, and rendered the oils under laboratory conditions. Attention is being given to other factors which vary during the year, such as physical condition, sexual activity, and diet of fish. Tests with early spring oil from emaciated fish show that .00202 grams of oil daily is fully ade-

quate for the vitamine "A" growth requirements of Albino rats.

"The Application of Certain Commercial Dyes to the Reductase Test on Milk," by Minnie F. Dressler and H. A. Webb. The abstract follows:

The decolorization of methylene blue by the reductase in milk furnishes a rapid approximate determination of its bacterial age. In order to make the test more convenient for bakers, grocers, restaurant keepers, cooking classes or housewives, who might wish to test milk claimed to be fresh on delivery, eighty-four dyestuffs sold under trade names for household use were tested. By a series of eliminations, the most satisfactory ones were determined, eight in number. They are: "Diamond Dyes," (wool and silk); Cardinal, Garnet, Orange, Turkey Red; "Rit" dyes: Blue, Flesh, Lavender, Red.

The decolorization times, which vary for each, but are reasonable, and the effect on various types of milk-whole, skimmer, cream, pasteurized, boiled, melted, condensed, evaporated, were

determined. Suggestions for the use of the test by nontechnical people were given.

Paul F. Sharp and Ross Aiken Gortner discussed "The Physical State of Gluten as Affecting Loaf Volume of Bread." The abstract follows:

Experiments by other workers have shown that an inferior loaf results when gliadin is removed from a flour by extraction with alcohol and the gliadin-free flour is dried, remilled and baked. This has been interpreted as indicating that the absence of gliadin is the determining factor of the poor baking results. We have found that essentially the same results may be obtained when flour is doughed up with 85 per cent alcohol and the whole mass dried, remilled and baked. Here nothing was added to or taken from the flour. Nevertheless the flour "strength" is destroyed. The alcohol treatment has destroyed the colloidal properties of the glutenin and any agent which influences the colloidal properties of the glutenin will affect loaf volume.

Horlick Company has succeeded in asserting and maintaining in many foreign countries a right to the exclusive use of the term, being able to present where requested a certified copy of its registration in the United States Patent Office as prima facie evidence of its ownership in the United States.

While the Patent Office might in connection with the application for renewal of the registration in 1917 have raised the question of the right to renewal in view of the decision in the Elgin Milkine case, it did not do so, but granted renewal as a matter of course.

Borden Applies for Cancellation of Registration

Thereupon, the Borden Company applied for cancellation of this registration and the issue came before the Commissioner of Patents on appeal. The Horlick Company raised little or no opposition to the question of the status of the term Malted Milk, apparently realizing the futility of any arguments on this score, but took the position that it should be allowed to present a disclaimer of the right to the exclusive use of these words to be endorsed on the registration, instead of having to submit to cancellation of the whole registration with the resulting necessity of re-registering the letters "M. M." and with consequent loss of its prima facie evidence date and possible jeopardization of foreign registrations based on the original certificate. The Commissioner of Patents held, however, that there is no provision of law that would permit the entering of a disclaimer after registration, as there is in the case of patents and that while the Supreme Court has approved the acceptance of though not specifically authorized by disclaimers prior to registration allowed, this approval cannot be held to afford authority for the entry of disclaimers subsequent to registration. The registration, therefore, was cancelled.

It follows from this decision, which is, of course, subject to appeal, that the fact that a trademark has been on the register for thirty days or more, and has even been renewed, is no assurance that the registration is safe from attack.

"Malted Milk" Registration Cancelled by Patent Office

A RECENT decision of the Commissioner of Patents in connection with a controversy between the Borden and Horlick companies over the words "Malted Milk" is of peculiar interest to trade-mark owners because of the originality of its holdings and because it decrees what is believed to be the first cancellation of a registration that had not only endured throughout its original term of thirty years as provided by the 1881 law but had been renewed for a further term of twenty years under the 1905 law.

The registration in question was effected in 1887 by the Horlick Company and described as the essential features of the mark "the letters M. M. and the words 'Malted Milk.'" At the time this registration was taken out, the Horlick Company had just begun the manufacture and distribution of a powdered extract of malt, flour and milk, to which it gave the name Malted Milk, a patent having been taken out under date of June 5, 1883. At the time the registration was taken out and for many years after, the Hor-

lick Company enjoyed the exclusive use of the words Malted Milk and have never since willingly abandoned its claim to the right to such use. However, in 1903, three years after the expiration of the patent referred to, the United States Circuit Court of Appeals for the Seventh Circuit held that whatever right there may have been to the exclusive use of the name during the life of said patent expired with the patent even although, as a matter of fact, the preparation was not made in accordance with the patent, and refused to enjoin the Elgin Milkine Company from the use of the name on a similar preparation.

Following this decision, others commenced to put Malted Milk on the market, notably the Borden Company, which now enjoys a wide distribution of its malted milk, both in the United States and abroad. In developing foreign markets, however, the Borden Company has apparently encountered difficulties owing to the fact that notwithstanding the position of the term Malted Milk in the United States, the

EDITORIAL

(Continued from page 25)

sending a united front they may analyze the various phases of the food problem; make individual and joint programs for constructive work; hasten the time when pending food legislation shall be accomplished; pull together for the dissemination of popular information regarding food, so that the public may form intelligent rather than biased opinions on matters of nutrition; offer a strong connecting link between the distributor and consumer and in short, both individually and collectively these groups and the interests represented by them have an opportunity to sweep the food industry forward to undreamed-of accomplishments.

Then there are any number of other forms of service which the manufacturer may render. He may set standards of high order for sanitary factories and well fed employees; he may make definite contribution to the literature of food costs; he may compile data and broadcast information regarding such matters as scientific control; he may lead in developing new by-products from particular products; he may raise his voice in favor of scientific research; and, in brief, the food manufacturer may make of himself an important force in the economic, the sanitary, and the nutritional phases of public health.

New Whole Wheat Macaroni Produced



The first step in the manufacture of the macaroni is to mix the mass of dough in a mixer.

A NEW macaroni made from the entire wheat is being put on the market by The Atlantic Macaroni Co., Inc., Long Island City, N. Y.

According to Morgan C. Lombardi, secretary of the company, this product, which is known as the Capitol Brand, has unusual qualities, in that it is the first macaroni to be made from the whole grain.

In describing the manufacture of Capitol Brand macaroni, Mr. Lombardi said recently:

"The Atlantic Macaroni Company is fortunate in owning its mill, one with a capacity of 600 barrels as well as the docks on the river. This gives opportunity for close supervision of the smallest detail in preparing all our products for the market.

"Capitol Brand macaroni," continued Mr. Lombardi, "is made from amber durum wheat. The wheat is first cleaned by machinery, all chaff, dust, oats and other foreign seeds being thus removed. Approximately three per cent dockage or waste is allowed but this is all removed.

"The wheat is washed in water and cleaned in a Wolf-Dawson machine by centrifugal force. After this, the wheat to be used in making Capitol brand macaroni is simply ground, making a 100 per cent product.

"The first step in the manufacture of the macaroni itself is to mix the mass of dough in a mixer, using lukewarm water to make it of the desired consistency, that is a homogeneous mass. It is next kneaded in a specially constructed kneader.

"The dough is then placed in a hydraulic press and forced through a bronze die under pressure of approximately 1,500 pounds to the square inch.

"The tubes are next hung on dowels and taken to a preliminary drying

room, where they are case-hardened with the aid of fast revolving fans.

"The macaroni is then placed on trucks and taken to drying rooms, these rooms holding eight large trucks. The product remains in the drying room until the moisture from the center is drawn out. Then fans are started, drying the surface again. This process is repeated until the macaroni is completely dry, a result that is obtained, according to weather conditions, in from three to four days.

"Finally, the macaroni is removed from the sticks, cut into proper lengths, weighed and placed in cartons which are wrapped automatically by machines.

"Capitol Brand macaroni is sold



The macaroni is cut into proper lengths, weighed and placed in cartons, which are wrapped automatically by machines.

through jobbers, rather than direct to the retail trade."

The Food Service Bureau of The American Food Journal has recently had the pleasure of co-operating in the launching of this new product, having prepared a leaflet containing recipes and suggestions for cooking.

Aunt Jemima Mills Putting Out New Bran Product

A new form of bran product is being manufactured by the Aunt Jemima Mills Company, St. Joseph, Mo.

In describing the product G. A. Aylsworth, vice-president of the company, said:

"There is in the public mind now, as you know, a rapidly-growing appreciation of bran as an aid to health. Doctors are recommending it daily. Magazines are publishing articles about it. And advertisers have been trying hard to develop a really big market for bran.

"Yet today, most of the bran that's produced in our 15,000 or more flour mills is going back to the farms for the cows and calves. Millions of people who know bran should have a place in their diet, are not eating it!

"As manufacturers of edible bran in packages for a number of years we charge ourselves equally with others when we confess that bran has not been edible enough—that it hasn't been made sufficiently tempting to the palate.

"If now, in Bran Fluffs, we have produced bran in a form so attractive, so palatable as to overcome the greatest objection to products of its kind, then we have accomplished something of no less importance to the grocery trade than to ourselves."

The Bran Fluffs are puffy golden brown bits, palatable and attractive.

57

Tomatoes, fresh and field ripened

This is the tomato season. It is a busy time for Heinz workers, for while it continues, pride in the product supersedes all other interests. The tomatoes, grown from special Heinz seed, are red ripe on the plants before they are picked. Then delivery to the Plants is made with all possible speed. In most cases no more than 24 hours elapse from the time the tomatoes are picked until they have been cooked with freshly ground spices and bottled as Heinz Ketchup and Chili Sauce.

It is the care in the selection of products and the skill with which they are handled that give the 57 Varieties their quality and make them so popular with the consumer.

H. J. Heinz Company
57 Varieties

Condiments That Add To the Flavor of Your Food

In Libby's Farm Kitchen at Blue Island, Illinois, choice spices from far corners of the earth, are blended to give just that degree of piquancy to LIBBY'S CATCHUP, and CHILI SAUCE, LIBBY'S PICKLES, and LIBBY'S MUSTARD, which will please you most. Four condiments from a famous line of food products, which will add to rather than cover up the natural flavor of your food.

Libby, McNeill & Libby
Chicago

Libby's



*If she
were your child—
would you let strangers feed her?*

OF COURSE NOT! You would select her food yourself—for you know how much depends on proper food for the growing years.

When ordering just "oats" or "oatmeal" are you not depending upon strangers? H-O (Hornby's Oats) is an old and trusted friend—the only oats especially prepared for the food needs of children.

Steam cooking under high pressure breaks down the starch cells and dextrinizes the starch, making H-O digestible and nourishing—that's why H-O is different from ordinary-priced oats.

Slow toasting in the old-fashioned way over coal fires makes H-O golden-brown in color and gives that delicious H-O flavor.

H-O is light and creamy, each flake by itself, and never cooks up sticky and pasty.

Every home can afford H-O. Health is cheap at any price.

THE H-O CEREAL COMPANY, Inc.
Buffalo, N. Y., and 3Ayr, Canada

Also Makers of

FORCE Whole Wheat Flakes PRESTO Self-Rising Flour



H-O is packed in new improved label-wrapped and corner-sealed package

This advertisement is appearing this month in the following publications: Ladies' Home Journal, Pictorial Review, Good Housekeeping, American Magazine, Sunset, Scribner's, Harper's and American Cookery.

Foods Around the World

Interesting Items Gathered by the U. S. Department of Commerce From All Quarters of the Globe

"Food in Packages" Idea Becoming World Wide

The American idea of foodstuffs in packages—sealed, airtight, and bug proof—is gradually being adopted throughout the world. The Foodstuffs Division of the Department of Commerce recently called attention to the growing favor of packaged goods in China, and now a report has been received from R. S. Smith of the American Legation at Santiago, Chile, to the effect that packaged goods, hitherto practically unknown there, are gradually being demanded. According to the report, this modern idea is being received with mingled feelings among those concerned—the wealthy and middle classes welcome the method, the poorer classes continue preferring foodstuffs in bulk which are a trifle cheaper, the small storekeepers don't quite relish the packaged goods as they spell Waterloo to the ancient and honorable practices of short-weighing and adulteration. So great has been the increase in the use of packaged foods that several well-equipped factories are busy turning out cans and cartons. An interesting feature of this industry is that many of the containers are marked in a way to indicate foreign origin, using therefor the language of the country from which the goods are supposed to have come. The lack of confidence on the part of the people in native manufactures and a feeling that imported goods are necessarily superior is the reason for this "aim to please."

Chocolate Bars Replacing Sauerkraut in Germany

Owing to the rapidly increasing cost of living in Germany, many people are now substituting bars of chocolates for regular meals, American Consul Donegan, Konigsberg, informs the Department of Commerce. In 1919 great quantities of American chocolate, smuggled after the armistice into West Germany where importation of chocolate is prohibited, were sold in East Prussia, and a heavy demand with splendid prospects of a permanent importation of American chocolate existed.

Dealers are of the opinion that a good market can now be built up for American chocolate tablets and cocoa of first class quality, if they can compete with German products and secure import licenses. Consumption of chocolate is increasing constantly. In 1921, 127,000 metric tons of cocoa-beans were imported into Germany, whereas in 1913 only 52,500 metric tons were imported. Notwithstanding the fact that large sections of Germany have been amputated from that country since 1913, the per capita consumption has increased approximately 300 per cent.

To Study Tropical Plant Culture

Experiment stations have recently been put into operation by the government of the Dutch East Indies at a dozen points throughout the islands where practically every phase of tropical agriculture will be studied, Consul Parker W. Burhman, Java, has informed the Department of Commerce. The important results obtained by the agricultural experiment stations of the

United States Department of Agriculture scattered all over this country have no doubt lent a helping influence to the decision of the Dutch East Indian government to make a scientific study of the growing of coffee, tea, cocoa, rubber, tobacco, sugar cane, and the other tropical products which grow there so profusely.

Oleomargarine Production Turns the Corner

According to the Bureau of Internal Revenue the production of oleomargarine for May, 1922, was 448,330 pounds more than it was for May, 1921. This is the first time since 1920 that there has been an increase in the monthly production over the production of the corresponding month of the previous year.

The margarin industry is making vigorous efforts to improve the standard of quality of oleomargarine and to improve upon the present methods of marketing it so that it will reach the consumer in a better condition.

Britain Seeks World Cocoa Trade

Great Britain's reduction of the import duty on cocoa is causing considerable feeling among her West African colonies, according to Vice Consul Coulter, London, who states in a report to the Department of Commerce that it is desired to encourage the production of cocoa within the British Empire and that the large volume of cocoas produced in West Africa is said to be due to the protective tariff. The Gold Coast supplies more cocoa than any other single country and altogether the production of the British Empire accounted for 200,000 metric tons of the world's yield of 387,000 in 1921.

In the cocoa trade, the point of production is of the utmost importance, as the cocoa market is governed principally by the formulae of the manufacturers. Drinking cocoa of a particular brand is made up of various cocoas, half of the mixture being usually a cocoa of mild variety such as the West African cocoas. Stronger cocoa comes from Bahia and San Thome—most of which goes to Portugal. Venezuela and Ceylon cocoas are of a very high grade, while Guayaquil cocoa has been used without blending for drinking. The two varieties used to "lift" the chocolate mixture and to determine the flavor come from Trinidad and Grenada. Cocoa from the Camaroon, of a very peculiar, strong flavor and richness is favored in Germany but is shunned in the British market.

Canned Foods Aid Persian Hospitality

In Persia, when a foreigner is being entertained, the native does not place before him foods peculiar to that country, but offers him canned fish, meats, fruits and vegetables packed in the country from which the foreigner hails, or which he is accustomed to eat, says the canned foods unit of the Department of Commerce. The native Persian has not yet cultivated a taste for American dishes, although much canned foods, chiefly of British origin, is sold to the various foreign colonies.

Paraguay Grants Concession to Meat Packers

To help solve the crisis which for several years has been hampering the cattle industry of Paraguay, the President of that country, has offered a concession to a British meat packing company involving exemption from all import duties on machinery and equipment used in the construction, maintenance, and operation of plant, exemption from duties on imported cattle; exemption from all state and municipal taxes, navigation, port and docking fees, etc. Free exportation of meat extracts, canned meat and other products of the company is also granted.

According to American Consul W. J. O'Toole, Asuncion, the President believes that the establishment of this plant would contribute in no small way to the relief of the economic situation facing the meat industry of Paraguay.

Wheat Exporting Korea Has to Import Flour

A peculiar trade situation exists in Korea today with respect to wheat and flour markets. The country has two flour mills with a capacity of 800 barrels a day, which if running on full time could supply all the flour needed in that country, and yet they are running only on part time because they cannot obtain the wheat which they need, says Vice-Consul Beck, Seoul, Korea, in a report to the Department of Commerce, although Korea produced in 1921 over 11,000,000 bushels of wheat. This would be ample to supply the mills, but the fact that Korean wheat sells in Japan, England, and Central Russia for more than the local millers can afford to pay, is responsible for more wheat not being ground in Korea. American flour is being imported into Korea by Japanese merchants.

Mexican Millers Fear American Flour Imports

Mexican millers are vigorously protesting the recent action of the Mexican government in placing an importation impost of two and four centavos (one centavo equals one-half cent U. S. currency) per kilo respectively on corn and wheat and not also taxing flour from the United States. In a report to the Department of Commerce, Consul George T. Summerlin, Mexico City, states that the millers fear they cannot compete against American flour by virtue of the new tax upon imported grain.

Ireland Prefers American Foodstuffs

Ireland is now endeavoring to import directly through Belfast and other large Irish cities and to encourage the larger consumers to import direct in cargo or part cargo lots, says Vice Consul Barringer, Belfast, in a report to the Foodstuffs Division of the Department of Commerce.

At the present time there is a good market for American flour in Belfast and if the large bakeries can be prevailed upon to import their flour direct from American sources, this market will increase. Some of the flour connections, through middlemen located in Great Britain, extend for a period of more than thirty years and now the Irish

Pure food
pioneers
of the
"Eighteen
Nineties".

It is rather pleasant to be a pioneer, especially a pioneer in a cause as worthy as the pure food movement. It was in 1891 that a little group of Canajoharie people, in a building 40 feet square, first put into practice the Beech-Nut

method of curing hams and bacon.

From this beginning grew the shining Beech-Nut kitchens of today, famous for their ability to take an ordinary, every-day food and translate it into a tempting delicacy.

In the interests of the pure food movement, the Beech-Nut Packing Company will furnish without cost, macaroni and peanut butter exhibits to domestic science teachers, dietitians, and others engaged in the dissemination of pure food information.

Beech-Nut

"Foods and Confections of Finest Flavor"

BEECH-NUT PACKING COMPANY
Canajoharie New York

NUCOA

"The Wholesome Spread for Bread"

1922 NUCOA SALES

Dealers handling NUCOA exclusively are enjoying a good business. We are honest when we say there is no substitute for NUCOA.

Exercise the same care in stocking margarine you do creamery butter. NUCOA is the answer.



THE NUCOA BUTTER COMPANY

NUCOA BUILDING
23rd St. at Fourth Ave.
New York City

The Diet Problem of Delicate Children

is largely solved with Knox Sparkling Gelatine.

Breakfast foods which they often refuse are made highly attractive and even more valuable in strength restoration when prepared with this purest of gelatines.

Food authorities, dietitians and physicians generally recognize the health giving qualities of

KNOX

SPARKLING
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Free Recipe Books

Send for the Knox Books "Dainty Desserts" and "Food Economy" which contain hundreds of delightful recipes for all kinds of desserts, salads, meat dishes, candies and invalid dishes. They are free if you will send 4 cents to cover postage.

Any domestic science teacher may have sufficient gelatine for her class—free—if she will write on school stationery, stating quantity and when needed.

The Charles B. Knox Gelatine Co.

111 Knox Ave.,

Johnstown, New York



↑
Plain for general use. The original unflavored, unsweetened package.



↑
The "Busy Housekeeper's" package. Contains Lemon Flavoring in separate envelope. No Lemons required.

Both packages contain the same Quality and Quantity of Sparkling Gelatine

wish to do their own buying. The consul believes that it would "certainly pay for American flour exporters to thoroughly investigate the Belfast field at the present time."

Fish Exporting Country Exports Fish

Although Portugal exports canned and preserved fish—sardines, tunny, anchovies, etc.—by the shipload all over the world, her inhabitants have such a fondness for salt codfish that they send fishing fleets way off to the banks of Newfoundland to catch the cod which does not approach Portuguese waters. Millions of pounds of dried codfish are brought into that country every year besides what are caught by the Portuguese boats at Newfoundland, says Consul General Hollis, Lisbon, in a report to the Department of Commerce, and it would be necessary to increase to 280 vessels the present 60 now engaged on the Newfoundland Banks before the demands of the people for salt cod would be satisfied. Fishing is Portugal's secondary industry, being next to agriculture.

Germans Gain Colombian Rice Trade

German efforts to "come back" in South America are apparently succeeding along certain lines. In Colombia, the rice trade is now largely in the hands of Germans, who were able to place Chinese rice on the local market much lower than American dealers could, says Consul Stafford, Barranquilla, in a dispatch to the Department of Commerce. Freight rates largely entered in this state of affairs and Americans who once enjoyed a large business in rice have seen most of it taken away from them.

British Want Better Canned Milk

Aroused by the growing sales in London of canned cream as low a percentage as 27 per cent of fat, the Government authorities have submitted recommendations to the Ministry of Health calling for a minimum standard for canned cream. The recommendations, according to advices reaching the canned foods unit of the Department of Commerce, also provide for a minimum of 9 per cent milk fat in condensed milk and specify the total milk solids. Canned skim milk would be required to be labeled as such, and must bear prominently a statement that such milk is not a fit food for infants.

Discoveries Will Improve Coffee

The coffee beetle which has for years been destroying uninterruptedly coffee plantations throughout Africa, the East Indies and other coffee-growing districts, may at last be curbed by a recent discovery in Java, details of which the Department of Commerce has just been informed by Consul Starrett, Batavia. The beetle breeds in the earliest ripened berries. It feeds on the younger berries, and some trees due to the plague suffer a 70 to 90 per cent diminution.

A new method of refining or cleaning raw coffee, which is claimed to be far superior to the present method is also announced. The difficulty of applying a definite refining process to raw coffee without spoiling the quality has apparently been solved.

Too Many Cattle in Australia

The East is being looked to as the solution of Australia's live stock problem. With tremendous herds of cattle roaming the country and her usual markets already

well supplied, Australia is seeking for new markets for the overstock and meat supplies. The Grazier's Association of New South Wales is inquiring into the possibilities of Java, Japan, and China as markets. For a number of years livestock has been sent to Java and Japan recently took one hundred tons of Australian frozen beef, R. H. Fisher of the American Consulate at Sydney informs the Department of Commerce. In China canned meats are already selling in many of the big cities, according to a Sydney paper. American and Canadian competition will have to be considered, for the paper remarks that "America and Canada are already shipping considerable quantities of meat to Hongkong and Shanghai at prices practically the same as Queensland cattle would bring, notwithstanding the low price of cattle in that state."

Fishing and Fish-Canning in Spain, 1921

Canned sardines and tunny are the principal items of Spain's fishing industry, says Vice Consul Bucher, Barcelona, in a report to the canned foods unit of the Department of Commerce, Vigo being the center for sardines and Cadiz for tunny. Sardines, hake, sturgeon, and redfish are also caught to a considerable extent in the region of Corunna and Ferrol.

In 1921, there were 8,043 tons of salted and canned sardines, valued at 3,217,332 pesetas, exported from Spain, over half of this amount going to Italy, and but 411 tons to the United States. Exports of all other canned or preserved fish in 1921 amounted to 2,554 tons valued at 2,299,007 pesetas; 1,163 tons being taken by Italy, and 296 tons by the United States. Of the 1,452 tons of fresh fish exported in 1921, 1,112 tons went to France and 309 tons to Portugal. It is estimated that approximately 125,000 persons are engaged actively in the Spanish fishing industry.

According to latest statistics, the total catch in 1920 was 403,594 metric tons valued at 374,079,838 pesetas, as compared with a total catch of 283,822 tons in 1918. Figures for 1919 are not available.

Norwegian Sardines for the United States

Norwegian sardines, now unfamiliar to many housewives of this country, will shortly be offered the hundreds of thousands of customers of a large chain of grocery stores, following the recent signing of a contract between the American concern and Norwegian canneries for 12,500 cases of sardines, Assistant Trade Commissioner Sorensen, informed the canned foods unit of the Department of Commerce. Sauced mackerel and kippered herring will also be sent to this country.

Milk Crisis Facing Berlin This Winter

Milk will cost 25 marks a liter this coming winter in Berlin, Germany, according to a declaration of the municipal milk bureau just received at the Department of Commerce from its Commercial Attache in Berlin. In view of the recent enormous mark drop it is probable, however, that the price will be much higher. The daily pre-war consumption of Greater Berlin was 1,400,000 liters, and today the entire supply amounts to but 450,000 liters, of which 350,000 liters are brought in from the country and the remainder furnished by city dairymen who keep their cows in stalls in the city and bring in fodder from the country. Berlin granted a subsidy to these city dairymen to overcome the higher cost of production. They in return deliver 3½ liters of milk per cow each day for

distribution to families with children, to whom milk cards were issued. Economic stringencies make it out of the question for the continuance of this and other food subsidies, and the milk subsidy is almost certain to lapse entirely. This action will mean further privation and malnutrition, and a return to scanty war rations, the attache predicts.

United States Flour for the Azores

Decreasing wheat crops from year to year in the Azores has forced continued imports of flour, largely from the United States. As a precautionary measure against possible combinations by importers and dealers, the government is doing the importing and delivers the flour to licensed bakers exclusively, Consul Linard, St. Michael's, informs the Department of Commerce. Shortage of farm labor and the consequent decreased acreage has limited the local production of wheat to the point where flour must now be imported.

African Fruits are Circling the World

South African fruits, maturing at the time when American and Mediterranean fruits are not available are now being shipped around the world—over 800,000 boxes having been exported in 1921, Consul Charles J. Pizar states. The fertile velds used by the Boers as grazing lands are now sustaining hundreds of thousands of fruit trees. South Africa's orchards contain 116,320 lemon trees, 1,382,410 orange trees, 323,300 tangerine trees, 1,211,550 apple trees, 907,800 apricot, 105,300 mango, 57,560 nectarine, 2,411,270 peach, 542,420 pear, and 995,570 plum trees, according to the Government census. Thousands of acres are devoted to grapes and currants, and the South African dried fruit exports, the bulk of which goes to England, are growing larger.

Belgium Turns from Frozen to Fresh Beef

If its Parliament approves the report of a commission appointed to examine the question of the government continuing to import and market frozen meat, Belgium will very likely go out of the meat business, Consul Messersmith, Antwerp, reports to the Department of Commerce. The cold storage plants, camions, cars, and all equipment should be sold or otherwise disposed of, the commission recommends.

Imports of live cattle from Argentina are becoming more and more frequent and the Belgian Ambassador to Argentina has taken up the question of the proper kind of animals to ship. Late shipments consisted of animals too old and too heavy, whereas young steers of about 1,200 pounds were most desired. The first shipments of Argentina cattle caused prices of cattle to fall one franc a kilo in Belgium.



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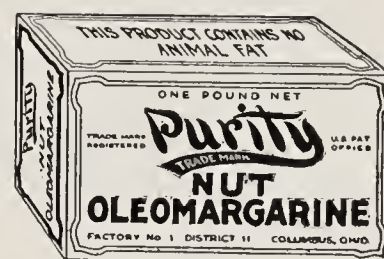
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Russian Beet Sugar Industry

Under Soviet Rule it Borders on Almost Complete Collapse— Concessions Considered

A recent report received by the Food-stuff Division of the Department of Commerce casts considerable light on the situation of the beet sugar industry in Soviet Russia. The report says in part:

By the Brussels Convention of 1907 the European powers bound Russia over to limit its total exports of beet sugar for six years to 1,000,000 tons—200,000 tons annually after the first year. In 1911, two years before the expiration of this agreement, the failure of the sugar-beet crop in other European countries and its own bumper crop of 2,108,000 tons impelled Russia to apply for permission to export an additional quantity of 500,000 tons.

The request was favorably received by England, but the other members of the Brussels Convention refused to consider it unless Russia undertook to renew the convention for another five years—that is, till September, 1918—in which case sugar exports would have to be limited to 200,000 tons annually, as before, plus an additional quantity of only 250,000 tons spread over three years. Although this was contrary to the interests of the Russian sugar industry, and was strenuously opposed by England, the limitation was accepted and the renewed convention signed. ("The Times Book of Russia," 1916.)

Within three years after the expiration of this agreement—that is, by 1921—Russia's gross output of beet sugar had sunk to 49,000 long tons.

Causes of Reduced Production

Various causes have contributed to this decline in the beet-sugar industry, but notably the inferiority of seed used and the inefficient cultivation by peasants.

Before 1917 only 15 per cent of the area of sugar-beet cultivation was sown by the peasantry, while 85 per cent was planted by large estates. Owing to a careful selection of seed and progressive methods of cultivation the average yield on the large plantation was 1,200 poods per dessiatine, with a maximum of 2,200 poods (7 1-6 long tons and 13 1-7 tons, respectively, per acre); the average content of sugar in the beet was from 18 per cent to 19 per cent by weight, with a maximum of 23 per cent. On the peasant farms the yield of the sugar beet averaged from 600 to 700 poods per dessiatine, with a maximum of 1,200 poods (3 3-5 tons, 4 1-6 tons, and 7 1-6 tons, respectively, per acre); the average content of sugar in the beet fluctuated between 12 and 13 per cent (11 per cent or less is considered unprofitable for cultivation). In other words, the average yield of sugar beet per dessiatine (or per acre) on the large estate was on a level with the maximum yield of the peasant farm.

Prior to the war the supply of beet seed was concentrated in the hands of German seed cultivators, who derived heavy profits from supplying it to Russian planters. The firms chiefly interested were Rabetke & Gieseke and that of Dippe; also a few Polish, Swedish, and French firms. There were also about 500 planters in the right-shore section of the Ukraine (that part west of the Dnieper) who developed the cultivation of seed for their own needs. These were the best-equipped and most progressively managed properties. The seed used by the peasantry, especially since the revolution, has been of poor

quality and bad selection, and this has enhanced the effect of curtailed acreage. ("Economic Life," May 7.) The Soviet Government nationalized all the large estates but was entirely unprepared for cultivation of these enormous fields, and the sowing area had to be curtailed from year to year.

Recent Efforts Toward Improvement

Since the inception of the "new economic policy" in the summer and fall of 1921 and the concentration of fullest administrative authority in the hands of the management, regional and factory, serious efforts have been made by the experts in charge to improve not only the cultivation of beets but especially the technical side of sugar extraction. Despite the disastrous outcome of the 1921 to 1922 campaign these steps are beginning to be felt in many respects.

By January, 1922, there were fully equipped and in operation 13 experiment stations, distributed as follows: Kiev Government, 6; Vinnitsa, 4; Kharkov, 1; Kursk, 1; and Poltava, 1—the largest of all. These stations had as much as 5,404 dessiatines (14,590 acres) of land and employed 609 experts.

During the last year these stations produced 242½ poods (3.91 long tons) of so-called "station elite" seed, which cost before the war 1,500 gold rubles per pood (about \$21.40 per pound). They also turned out 8,451 poods (136 tons) of reproducing (transplanting or "mother") roots. In the fall of 1921 the stations distributed among sugar factories 22,000 poods (355 tons) of fall seeding material and 2,500 poods (40 tons) direct to peasant farmers, as well as 9,000 poods (145 tons) of reproducing beets for the 1922 to 1923 campaign. The capacity of the existing laboratories was stated to be over 50 per cent that of pre-war Russia, including Poland.

Since the fall of 1920 there has been functioning a school of sugar-beet agronomists. The first class of 60 was recently graduated, and 30 have been sent to experiment stations as junior assistants, while the other 30 have been sent to Germany for a postgraduate course.

Projected Rehabilitation by Concessions

Whatever may have been the share allotable to the causes mentioned above in explaining the steadily dropping production of sugar, at the present time production has reached a point bordering on complete collapse; and the question is being aired in the Bolshevik press as to whether the industry can survive at all.

Numerous projects are being suggested. Of these, the one most frequently alluded to is a concession to a German syndicate composed largely of former cultivators of beets. The German firm of Rabetke & Gieseke has recently applied to the Soviet Government, according to a report in the Boersen Zeitung (Berlin) of May 12, with the project of organizing a stock company to which will be given a monopoly concession for the production of beet seed. Another project deals with a concession to a series of exploiting syndicates.

Yet another deals with the leasing of the plants to their former owners on especially advantageous terms. Meanwhile, former owners have been negotiating with foreign capital in anticipation of some possible

change in the power or the policy of the Bolshevik Government. The Soviet of the Ukraine was reported to be dealing directly with a Dutch sugar syndicate (the Central Suiker Syndicate) for the purchase of 20 sugar factories which were formerly the property of Polish interests, at the same time negotiating with the former owners for release of their funds.

Packer and Retailer Combining in Consumer's Interest

An interesting analysis of the work of the Institute of American Meat Packers appears in "The National Provisioner," for August 26, 1922. To quote:

"Something that could not have occurred if there were no Institute of American Meat Packers, something that could not have occurred if there were no Meat Councils, has taken place. The entire meat packing trade of the United States—or such part of it as is interested in pork, including both packers and retailers—has functioned as a unit to achieve a common, constructive purpose. All factors in the business of selling meat are co-operating to move hams.

"Public, dealer, packer and producer will benefit. The consumer will get a good bargain; the dealer will make many satisfied customers; the packer will move his stock, which is economically advantageous to consumers and producers; and the stockman obviously will be benefited.

"How is the job being done?

"It is being done in many ways, some of them quite graphic, and all of them interesting. Here is the whole story:

"When the month of July closed, the Institute's Bureau of Public Relations began preparation of the regular monthly Review of the Meat and Livestock Situation, an abstract of which is always given to the nation's press. This time the introduction was focused sharply on hams. Consumers were told in no unmistakable way that hams had declined and were a good buy.

"About the same time a similar statement was issued by the head of a member company of the Institute.

How the Campaign Was Pushed

"The public now had been informed of the decline and had been advised to take advantage of the bargains which hams offered. It was necessary to drive home the advice and to get dealers co-operating so that the 'sale might be consummated.'

"Several packer members of the meat councils requested W. W. Woods, Secretary of the National Association of Meat Councils, to enlist the co-operation of the local councils.

"Mr. Woods brought the situation before the local meat councils for decision by each council as a local policy. A telegram received from him by an Eastern meat council is typical of the messages which started prompt action in nearly a dozen big consuming centers. It read substantially as follows:

"'Packer members several meat councils advise National Association Meat councils that hams are dragging at bargain values. Is this condition true of your city? If so, cannot meat council get dealers to feature hams, issue statements about their cheapness and furnish window posters to dealers?'

"This proposal was speedily transmitted to the meat councils by the National Association and to meat packers by the Institute. Preparation, printing and distribution of posters and material were planned and handled for both organizations after a series of meetings by the Institute's Bureau of Public Relations in co-operation with the National Association."

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Meat Exports Decline but Grains Show Increase

According to the Foodstuffs Division of the Department of Commerce the exports of principal foodstuffs from the United States for July and the seven months ending with July are characterized by a general decline in the exports of meat and meat products both for July and for the seven months' period, compared with the same period of last year. There has been a large increase, however, in exports for the past seven months, through July of coarse grains, such as corn and oats, with considerable increase in exports of rye. Wheat exports have been relatively low for the past seven months, compared with recent years, although still in excess of the pre-war period.

Lard decreased in July, 1922, to 66,057,686 pounds from 83,329,134 pounds in July last year. Neutral lard increased for the same periods from 1,470,900 pounds last year to 2,188,647 pounds this year. Margarin made from animal fats also registered a slight increase, the exports in July of this year having reached 180,834 pounds compared with 125,031 pounds for July of last year. This figure looms slightly larger when it is considered that the figures on this product prior to January, 1922, included margarin from vegetable fats also. The figures on margarin from vegetable fats for July, 1922, was 22,918 pounds, bringing the total up to 203,752 pounds against 125,031 pounds in July, 1921.

Recent Patents

The following patents of interest to readers of *The American Food Journal* recently were issued from the United States Patent Office. Copies thereof may be obtained from R. E. Burnham, patent and trade-mark attorney, Continental Trust Building, Washington, D. C., at the rate of 20 cents each. State number of patent and name of inventor when ordering.

1,423,810. Method of producing a condensed-milk product. Howard S. Mellott, Morenci, Mich. assignor to By-Products Recovery Co., Toledo, Ohio.

1,423,818. Coffee-roaster. Nathaniel B. Post, Chicago.

1,423,830. Rice-preservation process. Sander I. Christensen, Willows, Cal.

1,424,132. Process of cooking grain and a product for effecting the same. Herbert M. Greene, Portland, Ore.

1,424,232. Apparatus for coating cakes, etc. Frederick Beers, New Rochelle, and Howard L. Powell, New York, N. Y., assignors to National Biscuit Co., New York.

1,424,286. Process and machine for coating bonbons and the like. Charles A. Fankhauser, Geneva, Switzerland.

1,424,484. Preserved egg and process of producing the same. Morris Kasser, San Francisco, Cal.

1,424,602. Process of producing ice-cream mix. Paul W. Turney, Washington, D. C.

1,424,603. Ice-cream mix and process of making it. Paul W. Turney, Washington, D. C.

1,424,806. Dough-forming machine. Louis de Vito, Cleveland, Ohio.

1,424,927. Food product and process of preparing same. Sigmund Luft, Maywood, Ill.

1,425,053. Vegetable albuminoid and process of producing it. Ansil Moffatt, Indianapolis, Ind.

1,425,065. Growing of yeast. Bert A. Stagner, Pittsburgh, Pa., assignor to National Retarder Co., Chicago.

1,425,395. Machine for molding chocolate and similar products. Louis Levy, Paris, France.

1,425,497. Apparatus for manufacturing dextrin. John J. Merrill, Chicago.

1,425,814. Ice-cream freezer. Theodore L. Valerius and Olaf Larsen, Atkinson, Wis., assignors to Creamery Package Mfg. Co., Chicago.

1,424,998. Candy-machine. Carlos C. Morian, Olean, N. Y.

1,426,006. Method of making pudding compositions. Eduard Polak, Groningen, Netherlands.

1,426,011. Method of roasting and packing ground or whole coffee. John A. Reynolds, Detroit, Mich.

1,426,118. Machine for mixing chocolate or other material. Asbjorn Sonsthagen, Leytonstone, England.

Complaint Against Borden Company Is Dismissed

The Federal Trade Commission has announced the dismissal of its formal complaint against the Borden's Farm Products

Company, manufacturers of fluid milk and milk products, with offices in New York City. Commissioner Murdock dissented.

Food Brokers' Directory Is Nearing Completion

The new directory of food brokers being compiled by the National Food Brokers Association, 326 West Madison street, Chicago, is reported to be nearing completion. Proofs have been sent to members listed. Companies elected to membership in the association up until time of publication of the directory are being included in the listing.

Department of Agriculture Has Not Approved New Type of Milk Bottle

A number of inquiries recently received by the United States Department of Agriculture seem to be based upon newspaper reports that the Government had approved a new kind of milk container made of paper. So far as the department is concerned, no statement of either approval or disapproval has been made regarding any specific type of milk container, from either the sanitary or the economic standpoint.

Coming Conventions

American Association Creamery Butter Manufacturers, Continental and Commercial Bank Building, Chicago. Annual meeting at La Salle Hotel, Chicago, Nov. 28. Secretary, George L. McKay.

American Bakers' Association, 1135 Fullerton avenue, Chicago. Business manager, H. E. Barnard.

American Chemical Society, 1709 G street, N. W., Washington, D. C. Secretary, Charles L. Parsons.

American Corn Millers' Federation, 332 South La Salle street, Chicago. Convention in November. Secretary, T. M. Chivington.

American Dietetic Association, Washington, D. C. Annual meeting at New Willard Hotel, Washington, Oct. 16 to 18. Exhibits of equipment, food materials and charts. Chairman Publicity Committee, Clyde B. Schumm.

American Macaroni Manufacturers' Association, 26 Front street, Brooklyn. Convention date not yet set. Secretary, Edward Z. Vermynen.

American Manufacturers' Association of Products from Corn, 208 South La Salle street, Chicago. Annual meeting early in the year. Secretary, Dr. W. P. Cutler.

American Specialty Manufacturers' Association, 53 Park place, New York. Next meeting in Atlantic City in November. Secretary, H. F. Thunhorst.

Association of Operative Millers, Postal Telegraph Building, Kansas City, Mo. Next convention, June 4 to 9, 1923. Secretary, M. F. Dillon.

Biscuit and Cracker Manufacturers' Association of America, 90 West Broadway, New York. Convention date to be set by board of directors. Secretary, R. T. Stokes.

Flavoring Extract Manufacturers' Association of the United States. Date of next convention to be set in January. Secretary, Gordon M. Day, Day-Bergwall Co., Milwaukee, Wis.

Institute of American Meat Packers, 509 South Wabash avenue, Chicago. Convention Oct. 9, Hotel Drake, Chicago. Secretary, W. W. Woods.

National Association of Ice Cream Manufacturers, 155 North Clark street, Chicago.

Annual convention at Hotel Hollenden, Cleveland, Ohio, Oct. 16 to 18. Secretary, N. Lowenstein.

National Canners' Association, 1739 H street, N. W., Washington, D. C. Next convention at Atlantic City, N. J., the week of January 22, 1923. Secretary, Frank E. Gorrell.

National Coffee Roasters Association, 64 Water street, New York. Convention in New Orleans, Nov. 22 to 24. Manager, Felix Coste.

National Confectioners' Association, 11 West Washington street, Chicago. Convention date not set. Secretary, Walter C. Hughes.

National Dairy Council, 910 South Michigan avenue, Chicago, Ill. Annual meeting, Dec. 7, Chicago. National Dairy Show, Oct. 7 to 14, St. Paul. Secretary, M. O. Maughan.

National Dairy Union, 630 Louisiana avenue, Washington, D. C. Next meeting probably at National Dairy Exposition, St. Paul, Minn., Oct. 12, in connection with meeting of National Creamery Buttermakers' Association. Secretary, A. M. Loomis.

National Food Brokers Association, 326 West Madison street, Chicago. Convention to be held simultaneously with conventions of National Canners' Association and the Canning Machinery and Supplies Association, at Atlantic City, N. J., the week of January 22, 1923. Secretary, Paul Fishback.

National Macaroni Manufacturers' Association, Braidwood, Ill. Next meeting, June 1923. Secretary, M. J. Donna.

National Milk Producers' Federation, 1731 I street, N. W., Washington, D. C. Annual convention in November. Place not yet selected. Secretary, Charles W. Holman.

National Paper Box Manufacturers' Association, 112 North Broad street, Philadelphia. Annual convention, May 9 to 11, 1923, Claypool Hotel, Indianapolis, Ind. Secretary, William W. Baird.

National Pickle Packers' Association, 326 West Madison street, Chicago. Meets with National Canners' Association at Atlantic City, January 22, 1923. Secretary, F. A. Vickers.

Rice Millers' Association, 609 Maison Blanche Annex, New Orleans, La. Convention, May 31, 1923. Secretary, F. B. Wise.

WRITE FOR QUOTATIONS



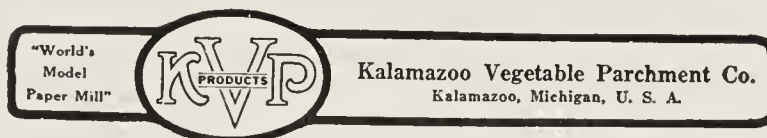
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Ways to Kill an Association

Food Broker Suggests Rules and Regulations for Its Reducing and Effectiveness

A member of the National Food Brokers' Association, Chicago, who modestly refrains from having his name mentioned, has submitted the following "Ways to Kill an Association," to the secretary. "They are," says the secretary, "both informing and amusing."

Don't come to the meetings.

If you do come, come late.

If the weather doesn't suit you, don't think of coming.

If you do attend a meeting, find fault with the work of the officers and other members.

Never accept an office, as it is easier to criticise than to do things.

Nevertheless, get sore if you are not appointed on a committee, but if you are, do not attend committee meetings.

If asked by the chairman to give your opinion regarding some important matters, tell him you have nothing to say. After the meeting, tell everyone how things ought to be.

Do nothing more than is absolutely necessary; but when other members roll up their sleeves and willingly, unselfishly, use their ability to help matters along, howl that the association is run by a clique.

Hold back your dues as long as possible or don't pay at all.

Don't bother about getting new members. Let the secretary do it.

When a banquet is given, tell everybody money is being wasted on blowouts which make a big noise and accomplish nothing.

When no banquets are given say the association is dead and needs a can tied to it.

Don't ask for a banquet ticket until all are sold.

Then swear you've been cheated out of yours.

If you do get a ticket, don't pay for it.

If asked to sit at the speakers' table, modestly refuse.

If you are not asked, resign from the association.

Don't tell the association how it can help you; but if it doesn't help you, resign.

If you receive service without joining, don't think of joining.

If the association does not correct abuses in your neighbor's business, howl that nothing is done.

If it calls attention to abuses in your own resign from the association.

Keep your eyes open for something wrong and when you find it, resign.

At every opportunity threaten to resign and then get your friends to.

When you attend a meeting, vote to do something and then go home and do the opposite.

Agree to everything said at the meeting and disagree with it outside.

When asked for information, don't give it.

Curse the association for the incompleteness of its information.

Get all the association gives you but don't give it anything.

Talk co-operation for the other fellow with you; but never co-operate with him.

When everything else fails, cuss the secretary.

makers of foods, there is a complete statement of the aims of the Food Products Institute of New Jersey and a list of the various departments in the institute with the names of those in charge. Dr. Frederic Dannenbath is general manager of the institute.

Regulation of Butter Substitutes in Canada

Under the regulations effective August 19, importation, manufacture, and sale of margarin in Canada shall be by special license only, and the manufacture of nut butters and oleomargarines is prohibited wherever the manufacture of butter or the reworking of rancid butter takes place. Vice Consul Vyse, Ottawa, informs the Foodstuffs Division of the Department of Commerce. Even the materials used for the manufacture of dairy butter substitute must undergo official government inspection and approval, so interested are the dairies in safeguarding the health of the people preferring nut butters. If a picture of a cow or the name of any breed of cattle or the words "butter," "creamery," or "dairy" appear upon the package of dairy butter substitute or is used in advertising the article, the manufacturers are heavily liable. Among the many sale restrictions there is one that margarin must be sold in the original package, must be stamped with the official inspection seal of the Canadian Dominion, Ministry of Agriculture, and must conspicuously bear the word "oleomargarine." If a restaurant, hotel, or lunch room serves margarin and doesn't announce that fact by prominent notices around the walls of the dining rooms, in the kitchens and elsewhere, it is a violation of the "law" and will cost about \$500.

Smyrna Fig and Raisin Crops

Government officials in Smyrna have a lot of trouble checking up export figures, particularly with regard to figs. Although the total production of figs for 1921 was officially recognized at 44,950,000 pounds, the actual exports reached a total of 51,193,000 pounds. This difference of over 6,000,000 pounds is accounted for by the shipments from certain unscrupulous exporters who deliver "hordas"—culls—in place of figs. This procedure has greatly embarrassed the government and the better class of exporters, who desire to maintain their good reputation. These exporters naturally prefer to refuse business rather than be guilty of unworthy conduct, not only on the principle of honesty, but to maintain the popularity of their respective brands of figs, says the American Consulate at Smyrna, in a report to the Department of Commerce.

It is believed that this year's crop will be between 50,000,000 and 55,000,000 pounds. However, if the expected rain fails to come this crop will be reduced to between 37,500,000 and 42,500,000 pounds. The expected rain also will affect the raisin crop similarly.

Salmon Canneries Swamped

Nearly 8,000,000 pounds of fish is the tremendous catch landed at Prince Rupert, British Columbia, during July, nearly 6,000,000 pounds being salmon, says Consul Wakefield, in a report to the canned foods unit of the Department of Commerce. The bulk of the salmon catch was taken directly to canneries in the Prince Rupert District. Taxed to capacity the canneries were not able to handle such quantities and thousands of pounds of the fish were thrown away during the month. Over 2,000,000 pounds of halibut, flounders, and cod were netted.

Salmon Packers Win Suit over Alleged Poisoning

The Alaska Packers Association, San Francisco, recently successfully defended a suit brought against it by individuals who claimed to have been poisoned through eating a can of salmon put up by the Alaska Packers. The Alaska Packers referred the case to the National Canners Association, which carried out an investigation. When the case was tried it developed that the illness began within an hour and a half after eating the suspected salmon, the symptoms resembling those caused by some irritant poisoning and also by a type of influenza prevalent in New York at that time. The New York City Health Department had secured the salmon can containing a small amount of the contents and turned it over to the United States Bureau of Chemistry, which upon examination found nothing in the product which would account for the symptoms of illness reported.

Testimony of the medical expert for the defense indicated that the illness must have been from other causes and the testimony of the bacteriologist showed that, as the plaintiffs all admitted that the salmon was apparently sound and wholesome, their ailment could not have been botulism as claimed by one witness for the plaintiff; that the period of incubation was too short for the illness to be due to organisms commonly causing acute digestive disturbances; and that even if such organisms had been the cause they must have gained access to the salmon after it was opened, as the ordinary process to which canned salmon is subjected is more than sufficient to kill organisms of that type.

Depends on Whose Bait Looks Best

When is a sockeye not a sockeye? This question is agitating American salmon packers, although the Canadian canners are not at all worked up about it. Canada's recent prohibition of the importation of canned Alaskan red sockeyes labelled "sockeye" will bar from that country identically the same fish caught and canned in British Columbia. Salmon caught in the vicinity of Loring, Wrangell, and Ketchikan, Alaska, and labelled Alaska Sockeyes may swim a few miles south and go into the Skeena River—when they become British Columbia Sockeyes. The sockeye salmon is noted for its deep red color and rich oil, and the species is rapidly disappearing. The fish caught in British Columbia labelled simply "sockeye salmon," are shipped all over the world. American Consul General Ryder, Vancouver, advises that the British markets are glutted with Siberian red salmon in competition with British Columbia sockeyes—the Japanese interests having launched a well-organized campaign for the British trade and the movement reaching serious proportions. Japanese packers pay only one cent each for the Siberian fish while sockeyes cost the British Columbian packers thirty-five to forty-five cents each.

Food Products Institute of New Jersey Issues Paper

"The Food World" is the title of the new official organ of the Food Products Institute of New Jersey, 96 Academy Street, Newark, N. J. The first issue of this publication, which is dated for September, is of eight pages and besides a greeting to all

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SAN FRANCISCO

Summarizing Arguments Against "Free Deals"

Writing in the Bulletin of The National Wholesale Grocers Association for August, 1922, a prominent wholesale grocer (the article is not signed) shows by figures that money invested in quicker moving goods pays better than in deals. Opening his argument the author writes:

When a jobber's salesman goes out with a free deal, he very seldom considers seriously whether this customer or that customer is able to handle successfully for a quick turnover, but his whole thought is to turn in orders, and let the credit man wrestle with the customer when his account gets in bad shape. I can recall quite a few merchants who have become financially embarrassed on account of buying too many free deals. They would have several 5- or 10-case shipments on their floor, and be out of other necessary articles, and the jobber would hesitate to make further shipments because the merchant was unable to pay his past due account.

In some cases the manufacturer offers free deals to the retailer exclusively on a basis that makes the retailer's net cost less than the jobbers. This naturally makes the retailer a competitor of the wholesale grocer and also helps to demoralize business among the retailers.

Difficult Records

Certain free deals place a heavy burden on the wholesale grocer in trying to keep records correctly, then again we have trouble with our customers. Some times we sell a customer two or three cases of a certain item and after he has had the shipment but two or three days, the factory sends out a free deal notice on this very item, which makes the retailer dissatisfied, as his competitor will doubtless buy the free deal and be in position to undersell him. My firm has actually lost customers for the reason that we could not refund our customer on merchandise shipped just prior to announcement of a free deal.

Idle stock in a grocery store is as worthless to that store as an idle man is to a community in which he lives. Quick turnover is one of the necessary factors in adjusting our business to present conditions and we should discourage the small retailer from overloading on free deals.

As an illustration, we furnish below figures showing what quick turnover means to either the wholesale or retail grocer.

10 Cases soap, 100s	\$4.50	\$45.00
2 Cases soap, 100s—free.		
1200 Cases retailed at 5c equal.....		60.00
Cost		45.00
Profit 25 per cent., or \$15.00		

Now we will take this \$45.00 and invest same in various grocery items at current prices.

1 Case crackers	4	\$0.60	\$2.40	\$3.60
1 Case lemon snaps... 4		.60	2.40	3.60
1 Case black pepper.. 2		.75	1.50	2.40
1 Case table salt.....			1.15	2.40
1 Case tomatoes	2	1.35	2.70	3.60
1 Case E. J. peas.... 2		1.85	3.70	4.80
1 Case fancy corn ... 2		1.40	2.80	4.80
1 Case soap			1.85	6.00
1 Case washing pwdr.			3.90	5.00
1 Case lye			3.75	4.80
1 Case starch			3.10	4.80
1 Case macaroni			1.65	2.40
1 Case eandy			3.00	5.00
1 Case popcorn			1.90	2.50
1 Box cigars			1.75	2.50
1 Case catsup	2	1.25	2.50	3.60
1 Case grits			2.00	3.00

17

\$45.05 \$64.08

Most of these items would turn in less than 30 days or one month, where the 12 cases of soap would last this same size merchant at least four months. The assortment brings the retailer a gross profit of \$19.03 each month, while the shipment brings a gross profit of \$15 every four months. Four months on the assortment would bring the retailer four times \$19.03 of \$76.12 or nearly five times the gross profit as received on the soap in the same length of time.

Figure Everything

Storage room, insurance, rattage, change in price and style of package should also be considered. Another bad feature with the free deal is that when a retailer finds that he is overloaded and needs money to meet his past due obligations, his first thought is to cut the price on the goods which has been a burden to him, this necessarily demoralizes the market. Some other merchant will meet this cut price, and the first thing we know the temporary cut price becomes an established price and the merchant continues to handle the item at or near cost.

On some free deals the retail merchant buys his goods as cheap as the jobber. Take A. & H. Soda for instance. Jobber's cost \$4.10 less 10 per cent equals \$3.69. Retailer's cost, \$4.10 per case, one case free with nine, equals \$3.69.

On many items the factory fixes the list price, showing scale of prices in different quantities, although the jobber is charged on the basis of the single case price. An item at \$3.90 is listed in 25-case lots at \$3.75, or practically 4 per cent off the jobber's list cost price. We have known some jobbers to offer 5 per cent off of the scale price, but we cannot believe but that it was through ignorance, thinking that he was receiving 10 per cent off of the \$3.75 price instead of 10 per cent off of the \$3.90 price.

Another Angle

My attention has just been called to a free deal put on in two Southwestern States, where the manufacturer authorizes the jobber to offer five cases free with five cases purchased and ten cases free with ten cases purchased. Here is where the jobber is distributing 20 cases and only compensated for 10 cases. In other words, on \$48 worth of business the jobber receives \$2.16. In my opinion the Federal Trade Commission should declare the free deal practice unfair competition. It is contrary to law for a railroad company to issue a pass to the owner or manager of a concern who does considerable shipping in order to influence business over that particular road, and it is equally a violation for a manufacturer to give certain items of merchandise to a customer in order to influence an order for that particular line of merchandise.

Another Deal

Then again we have manufacturers who solicit business from the jobber guaranteeing against decline in price for a certain period in order to get the jobber to stock up a little heavier than he would without the protection against decline. After all of the jobbers have been supplied and business gets dull with the manufacturer, he becomes anxious to stimulate business, and rather than offering a reduced price, knowing that he will have to rebate the jobber, he puts the decline in effect in the form of a free deal of one case free with ten or one case free with five, whichever the

case may be. The manufacturer will not supply free goods to cover the stock we have on hand, but we must buy additional goods to secure the benefit of the lower price.

Then again, free deals hinder the uniform flow of merchandise from the wholesale grocer to the retailer. In such cases where the manufacturers authorize free deals through their specialty men only, the merchant will oftentimes remain out of merchandise two or three weeks waiting for the specialty man to come around so he can secure a few cents worth of free goods that the jobber is not authorized to offer.

Hungary Needs American Foodstuffs

With a current lack of rice, sugar, fats, oils, flour, and other foodstuffs, the Hungarian market anticipates a considerable import movement within the near future, says a dispatch from Consul Kemp, Budapest, to the Department of Commerce.

If American products are to receive consideration, prices must not be too prohibitive and terms of payment must conform as nearly as possible to those given by Germany and Czechoslovakia, i. e., short term credits to new purchasers and from two to three months to old and reliable customers. German and other exporters ship large consignments to local banks in Hungary in order to guarantee immediate delivery at warehouse against cash payment.

British Candies Giving Our Sweets Hard Run in Honduras

The way American candy manufacturers are losing out down in Belize, British Honduras, is worrying our consul at that point. High and low grade American candies, he reports to the Department of Commerce, melt and run together within a short time. British candies don't. The Americans don't bother packing the candies in air tight containers. Some of the British candies keep for years in that climate without the slightest deterioration. Years ago, the English product used to deteriorate rapidly the same as the American goods do now, but an expert was sent down from England to determine the cause and after the submission of his report there was no further ground for complaint.

Would Use Evaporated Milk If Cans Were Small Enough

Down in Trinidad, the people are very fond of evaporated milk but cannot afford to purchase so perishable an article. If an American canner would put up a very small can of milk—just sufficient to serve three or four persons for one meal—and send it down there, our consul informs the canned foods unit of the Department of Commerce, it would give a decided impetus to the present trade now in the hands of Europeans and which amounts at the present time to supplying a food for practically babies only.

New Zealand Exports Butter and Cheese

A record butter output for Auckland, New Zealand, is reported for the dairying year ending June, 1922, when 1,115,034 boxes were produced, an advance of nearly fifty per cent over 1921 figures. Since 1906, the butter industry has shown phenomenal progress. Consul MacVitty, Auckland, informs the Department of Commerce. Shipments abroad took all but about 4,000 boxes. Over 150,000 crates of cheese were graded in Auckland during the same period, compared with 155,805 for the previous year. A total of 144,345 crates were shipped abroad.

Volume XVII

The American Food Journal

Number 10

The National Magazine of the Food Trades

Established 1906

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The American Food Journal

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Established 1906

Vol. XVII

OCTOBER, 1922

No. 10

What the Baking Industry Has Accomplished

Intelligent Cooperative Effort Has Brought it From Eighteenth to Eighth Place Among American Trades

By WINIFRED STUART GIBBS

Associate Editor, The American Food Journal

This is the first of a series of articles which The American Food Journal will publish on "Accomplishments in the Food Industry," telling of what has been done in various branches of the country's greatest business. The series will include articles on the dairy industry, the milling, packing, sugar, baking powder, canning, spice, nut, cheese and margarin industries, giving only the recent and striking accomplishments, so that the series as a whole will form an up-to-date history of activities in the field of American food.

IN 1912 Jay Burns, in an address delivered before the National Association of Master Bakers, in convention at Louisville, Ky., said in part:

"Some fifteen years ago a few far-sighted, earnest, progressive bakers saw the great possibilities for growth and development in the baking industry, met in Boston and formed the National Association of Master Bakers. These men had faith in the future and confidence in themselves. * * * I doubt if they then realized the powerful influence the organization was destined to exert in the wonderful strides which have been made these fifteen years. These men saw a great industry, as old almost as man himself, groping in a fog of lethargy, ignorance, obsolete methods, and jealousies, lacking both the ambition and the energy to try to lift itself out of the rut in which it had fallen.

"Today they see that industry awakened, militant and aggressive, making the greatest advances and showing the most wonderful development of any industry in this generation engaged in a production of a staple article. These changed conditions, this wonderful advance, are traceable almost directly to the association and its influences, to the inspirations which have come associating with progressive and aggressive men."

In the course of his address Mr. Burns showed that the association formed in 1897 was extremely profitable to the industry as a whole. Tracing tangible results, he announced that it seemed reasonable to suppose that the best way to uproot the prejudice then existing regarding bakery prod-



The emblem of the American Bakers' Association

ucts was to face the case squarely, admit every charge, if conditions pointed to the truth of the charges and then to go after the insanitary conditions with the full force of the association's membership.

A Plea for Consumer Education

Mr. Burns's next plea was for national advertising and consumer education. Urging the necessary inspection and reform, the comprehensive advertising and the separating of good bakeries from the bad, the speaker concluded:

"To carry out effectively such a campaign would entail a large expenditure of money; it would necessitate the maintenance of a general office with a directing head, and a sufficient number of inspectors to cover the field. It would also require the appropriation of a large sum of money for advertising."

The press of that period united to commend the forward looking baker, the man with a sense of values that led to his appreciation of past accomplishments and to ambitions for the future.

It was not, however, until 1921 that the hopes of the pioneers were nearing fulfillment. Today, "the industry has come out of its gloomy cellars and into the broad sunlight. Today it sums up the value of its production at a billion and a half dollars. Millions are invested in modern plants, equipment and advertising."

Aims of the Association

At the beginning of the present era of advance the aims of the association were stated as follows:

1. A change of name to the American Bakers Association.
2. The adoption of rigid standards regarding cleanliness of manufacture and the maintenance of an inspection service to see to their enforcement. This inspection service will make each member receiving the franchise responsible for maintaining the standards.
3. The adoption of a code of ethical business practices.
4. The granting of licenses to use the association label to signify compliance with these standards.
5. Through advertising to acquaint the public with the meaning of membership in the association and the significance to the public of the association label.

Summed up the association has set out to elevate, safeguard and expand the baking industry; that it is suc-

ceeding is now a matter of public record.

Briefly, the efforts toward elevating the industry are centered on securing a high order of sanitary and scientific production. The high character of the men who are leading the movement assures continuous work for ideals and practical accomplishment in the field.

As to the plans for safeguarding the industry the directors of the association are considering schemes for policing the baking trade from within and are cooperating in a wholehearted manner with all governmental measures that look toward sound legislation.

When it comes to the expanding of the industry, statistics that mark its growth are truly amazing. In 1900 it ranked eighteenth in the leading industries of the country. In 1919 it had advanced to eighth, while between 1914 and 1919 there was an increase of 186 per cent.

Possibilities Only Touched Upon

In the opinion of the leading officials the possibilities of bread consumption have been merely touched upon, as in 1916 statistics showed that, leaving out the farmers, who as a class are home bakers, 50 per cent of the bread consumed in cities and towns was baked at home.

The association worked out elaborate means for financing its plan, including a national advertising campaign, and according to its official organ this plan is working well.

The constitution provides for acquainting the public through advertising with the association emblem and what membership in the association means. The emblem adopted is reproduced, together with a suggested card of membership. This was adopted a few years ago and in advertisements prepared for use by the trade bakers are shown how to cash in on their membership and on the association label.

Opening of The American Institute

After 26 years of organized effort the bakers of the United States have a permanent home. This was established in the building of the Wahl-Ilenius Institute in Chicago and the transfer of the building to the American Bakers Association marked an interesting epoch in industry, for this well equipped building was planned and erected for the use of a college of brewing and when prohibition forced the Institute to close its doors the splendid plant was ideally fitted for the use of the new American Institute of Baking.

The acquisition of the new headquarters, with its wealth of scientific equipment, is not the only accomplishment of the enthusiastic activities of the board and committee. Coincident with the purchase of this building and the adoption of the new constitution, an all-star organization was perfected, consisting of 27 of the leading bakers



The permanent home in Chicago of the American Bakers' Association

in the United States. These men were in session from November 13 to 16, working zealously four solid days, to evolve a masterful program which provides for a permanent staff of officers and operating force for the conduct of the business of the association.

Establishing An Official Organ

The next step in this program of advancement was the establishing of monthly magazine, "Baking Technology," as the official organ of the association. This magazine, published by the Institute and edited by I. K. Russell, is a 30-page publication, devoted to the interests of the American Bakers Association and presenting information on technical problems, outlining plans for future developments, recounting histories of outstanding accomplishments and, in short, serving as a connecting link between the baker and the Institute as well as between the baker and the entire scientific world. It is "the common voice of the baking industry."

Educational Work of the Institute

At first the individual bakers were disposed to laugh at the idea of baking courses, maintaining that they "knew it all in their own shops and could train new men in the shop as they were needed." The most enthusiastic student in the pioneer class was a baker with an experience of eighteen years to his credit and the efforts of this man and others like him showed the bakers that it was good business to study the industry as any other technical operation is studied.

The course of study is outlined as follows:

Four Months' Course of Study

1. The Commercial Manufacture of Bread.

Report for work in shop, 6:30 A. M.

Shop Superintendents' Class, 8:15 to 10:15.

Lunch, by arrangement with instructor.

Shop work completed, 3:30 P. M.

General Class, 3:30 to 4:30 P. M.

This unit comprises the study of the manipulative portion of the work and involves the familiarization on the part of the student with the following operations by actual manufacture of bread by both hand and machine in a shop fully equipped with regular commercial machinery, corresponding to a commercial wholesale 10,000 loaf shop.

- A. Storage and handling of flour, sugar, salt, yeast, milk products, malt products, etc.
- B. Blending, sifting and weighing flour.
- C. Tempering and weighing water.
- D. Preparing ingredients other than flour for mixing dough.
- E. Mixing sponge and straight doughs.
- F. Bench work in making bread, rolls, etc., by hand.
- G. Fermentation of sponge and straight doughs.
- H. Use of mechanical dough dividing machine.
- I. Use of mechanical dough rounding machine.
- K. Use of mechanical dough proofing machine.
- L. Use of mechanical dough moulding machine.
- M. Panning bread.
- N. Proofing bread in merry-go-round proofers.
- O. Proofing bread in steam chambers.
- P. "Peeling" (feeding) bread into ovens.
- Q. Baking bread in patent and in portable ovens, using coal, coke, wood, gas and electricity as fuel.
- R. Unloading ovens.
- S. Use of mechanical bread cooling machine.
- T. Cleaning and preparation of bread pans.
- U. Use of non-automatic bread scaling machine.

- V. Use of semi-automatic bread wrapping and sealing machine.
- W. Use of fully automatic bread wrapping and sealing machine.
- X. Packing and shipping bread.
- Y. Use of cake mixing machines.
- Z. Use of and care of temperature and humidity recording instruments.
- AA. Use and care of dough troughs.
- BB. Use of bread labels.
- CC. Firing ovens.
- DD. Experimentation with new processes such as homogenization, etc.

The class work in unit one consists of the study of the problems of the bakery superintendent, such as:

- A. Figuring in the bake shop.
- B. Calculation of dough formulas.
- C. Calculation of shop schedules.
- D. Preparation of special schedules to meet unusual conditions, such as shortages on delivery orders, etc.
- E. Detection, elimination and prevention of bread diseases, such as rope.
- F. Construction, use of, and care of bake shop machinery.
- G. Records in use in the shop.
- H. Proper and improper formulas for the various baked products.

Unit 2. Experimental Baking.

Report for work, 8:00 A. M.

Class, 9:30 to 10:30.

Laboratory work completed, 3:30 P. M.

General class, 3:30 to 4:30.

Note: Students assigned to the experimental bakery have no time to go to lunch. They must bring their lunch and eat on the job.

This unit comprises the study of actual personal experience of the effect of variation of process and ingredients in bread doughs, and teaches methods of evaluating all ingredients. The work is done in a baking laboratory, where each student has individual equipment even to the extent of scales and ovens.

- A. The baking test. Preliminary runs for three days to familiarize the student with the equipment and method of testing.
- B. The study of the effect of baking bread from doughs of different stiffness.
- C. The study of the effect of baking bread from doughs fermented at different temperatures.
- D. The study of the effect of varying the time of fermentation on strong and also on weak flours.
- E. The study of the effect of varying the percentage of yeast in the dough.
- F. The study of the effect of varying the percentage of sugar in the dough.
- G. The study of the effect of using different kinds of sugar in the dough.
- H. The study of the effect of varying the percentage of salt in the dough.
- I. The study of the use of diastatic malt extract in bread doughs.
- K. The study of the use of sweet raw milk in bread dough.
- L. The study of the use of sweetened condensed milk in bread doughs.
- M. The study of the use of milk powder in bread dough.
- N. The study of the use of shortenings in bread doughs as to amount.
- O. The study of the use of shortenings in bread doughs as to kind.
- P. The study of the use of processed corn flour in bread doughs.
- Q. The study of the use of malt extract in connection with processed corn flour.



Dr. H. E. Barnard, Director of the American Baking Institute

- R. The study of the use of dextrinized corn starch in bread doughs.
- S. The study of means of eliminating granulated sugar from bread dough.
- T. The study of the use of certain mineral salts in bread doughs.
- U. The study of the use of commercial yeast foods.
- V. The study of the saving of time or yeast when using commercial yeast foods.
- W. The study of sponge and straight doughs.
- X. The determination of proper formula and procedure of baking for a sample of unknown flour.
- Y. Class work each day during this unit when the work of the preceding day is discussed in detail, and the work for the next day outlined.

Unit 3. Related subjects.

This unit consists of lectures and



An example of the national advertising done to promote increased use of bakers' bread.

exercises in the following subjects. A total of 81 hours is given to this work.

- A. Bake shop mathematics.
- B. Nutrition (the food value of bread).
- C. Weight laws.
- D. Labor problems.
- E. First aid to the injured.
- F. Sanitary laws.
- G. Trade ethics.
- H. Business laws.
- I. Bake shop mechanics.
- K. Personal hygiene.
- L. Standards for materials.
- M. Sales problems.
- N. Factory sanitation.
- O. Unfair competition.
- P. Trade associations.
- Q. Bake shop accounting.
- R. Bakers' machinery.
- S. Care of employes.
- T. Application of science to baking.
- U. Social relations of the baker.
- V. Medical supervision for the baking industry.

Unit 4. The chemistry of bread.

Baking chemistry class, 8:30—9:30

A. M.

Baking materials class, 9:40—10:40

A. M.

Laboratory conference, 10:50—11:50

A. M.

Lunch, 12:00—1:00 P. M.

Laboratory exercises, 1:00—3:20 P. M.

General Class, 3:30—4:30.

This unit comprises the study of the chemistry of bread and of the manufacture, properties and methods of testing bread ingredients.

- A. Elementary chemical definitions.
- B. Chemical equations.
- C. Properties of and application to baking of carbon, hydrogen, oxygen, nitrogen, sulphur, sodium, potassium, calcium, phosphorous, chlorine, bromine, and their compounds.
- D. Study of acids, alkalies, and salts.
- E. Elementary organic chemistry as far as it is applied to baking.
- F. Chemical mathematics as far as it is applied to baking.
- G. The chemistry of fermentation.
- H. The chemistry of bread diseases.

The class in baking materials studies:

- A. The manufacture, properties, and methods of testing of flour, sugars, salt, yeast, milk products, malt products, baking powders, yeast foods, starch products, water, etc.
- B. The microscopy of moulds, yeasts, and bacteria.
- C. Laboratory work consisting in application of the testing methods taken up in the class work.

During the course each student participates personally in the manufacture of approximately 30,000 pounds of bread, visits under the supervision of the instructor many commercial bakeries, and comes in contact with visitors of prominence, who are asked to discuss problems of the hour before the classes.

No student is given a certificate until he has taken charge of our school bakery and produced a day's run of baked products in a satisfactory manner.

The equipment of the School of Baking consists of a fully equipped mechanical bakery of about 10,000 loaves capacity, an experimental bakery with six commercial electrically



Car cards advertising bread furnished by the Fleischmann Company to local bakers

heated ovens, a chemical laboratory capable of accommodating twenty-four students at one time, a room specially equipped for microscopical work, two class rooms, club room for the men, and the usual offices, library and sanitary facilities.

Any one who is of mature age, who is interested in and, if possible, can show some proficiency in the baking trade, is eligible for entrance in the regular baker's course. Applicants for admission to the courses in cereal chemistry and technology and in the research department should send a full statement of their education and experience, upon which their application will then be considered.

The fact that the Institute is offering such valuable work and work that is organized and supervised as carefully as are the curricula of the best of our great universities and technical schools means, in the last analysis, just one thing and that is better bread and consequent better health for the nation.

The Bakers' Convention

In September, 1922, the American Bakers' Association held its annual convention at Chicago at which the exhibits of machinery broke all records.

Plans were laid for developing the work of the association and of the Institute during 1923.

Among the important exhibits was that of the Fleischmann Company, and this brings us to another interesting feature of the bakers' accomplishments, that of individual cooperation from an individual manufacturer in an allied field.

Work of the Fleischmann Company

In 1919 the Fleischmann Company, realizing that nation wide advertising of bread products would directly benefit its own business, was instrumental in launching a campaign of national advertising. During the first year this advertising was carried on in the leading magazines, during 1920 and 1921 in street cars and for the coming year a campaign of bill board advertising is planned. The company said to the bakers:

"This is a campaign from which you will derive direct benefit and if you will come in with us we can help you by placing at your disposal the advantages of our large organization, so that you can cash in locally as a result of the national advertising."

Trade interest being secured, the bakers asked for material. This was a problem but the Fleischmann Company worked out a bakers' advertising department which functions like an advertising agency, except that the service is furnished free of charge.

As an illustration of the practical benefit to be derived from the department, let us take, for example, a small baker who serves 50 shops. In need of advertising matter similar to the street car card pictured on this page, this baker finds that 50 cards will cost him anywhere from \$1.50 to \$3.00 each, whereas the Fleischmann Company can print them in lots of 50,000, charging the individual baker only 15 cents per card. Furthermore, the Fleischmann Company is careful to safeguard the baker by refraining from the selling of duplicate advertising cards to other bakers in the same territory.

In 1919 the Fleischman Company succeeded in interesting only eight bakers in the entire Eastern section, today there are more than 2,000 using the service.

Study of the Bread Market in United States

The Fleischmann Company recently undertook a thorough study of the bread market in the United States to determine:

1. The amount of bread eaten per person in this country.
2. The percentage of the bread market enjoyed by the commercial bakers.
3. How commercial bakers may enjoy a still greater percentage of the bread market.

The details of this study are to be published in a future issue of The American Food Journal, in the department "The Conference Table."

In conclusion it only remains to say that the baking industry as a whole is setting a new standard for American food and is taking its place as a force in the field of public health.



Some of the magazine advertisements to boost bread used by the Fleischmann Company

Food Control Officials Meet in Kansas City

Listen to Many Excellent Papers on Technical Subjects; I. L. Miller of Indiana Elected President

THE Association of American Dairy, Food and Drug officials held its twenty-sixth annual convention at Kansas City, Mo., October 3, 4, 5 and 6. No action was taken on uniform food legislation or other important matters affecting the food industry, but the food control officials spent several days profitably in listening to papers and discussions, mostly on technical subjects.

I. L. Miller, food commissioner of Indiana, was elected president to succeed Capt. R. E. Rose of Tallahassee, Fla. Other officers elected are: first vice-president, A. D. Sibbald, Minnesota; second vice-president, A. L. Sullivan, Maryland; third vice-president, D. J. Frazier, Tennessee; secretary, W. C. Gaegley, Michigan; treasurer, H. E. Wiedemann, St. Louis, Mo. Dr. S. J. Crumbine of Kansas was elected a member of the executive committee.

Among the foremost papers on food subjects, some of which are printed in this issue, with others to come in the November issue, are the following:

"Food Poisoning," by Dr. Charles Thom, mycologist of the United States Bureau of Chemistry.

"Proper Procedure for State Officials in Cases of Food Poisoning," by Dr. S. J. Crumbine, secretary State Board of Health of Kansas.

"Uniform Food Laws," by Dr. T. J. Bryan, chief chemist, Calumet Baking Powder Company, Chicago.

"How Industries Can Cooperate with Officials," by Dr. H. E. Barnard, American Bakers' Association.



I. L. Miller of Indiana, New President of Association of American Dairy, Food and Drug Officials.

"What Producers Expect of Dairy and Food Control Officials," by Dr. J. S. Abbott, secretary, Institute of Margarin Manufacturers.

"Corn Sirup vs. Glucose," by Dr. W. P. Cutler, secretary American Manufacturers' Association of Products from Corn.

"Cooperation of Food Officials With Manufacturers," by William H. Long, law department, Libby, McNeill & Libby, Chicago.

"Sanitary Service and the Industries," by Dr. W. C. Witte, United States Public Health Service.

"The Constitutional Rights of States in Food Legislation," by J. Q. Emery, food and dairy commissioner of Wisconsin.

"Development of Food Law Control," by Walter G. Campbell, acting chief United States Bureau of Chemistry.

"Municipal Food and Drug Control," by Dr. H. J. Knapp, chief diagnostician municipal laboratories, Cleveland.

"Medical Examination of Food Handlers," by Dr. Charles V. Craster, health officer, Newark N. J.

Among the resolutions adopted at the final executive session was one which provoked considerable discussion as it proposed delegating authority for one year to the association's members of the National Joint Committee on Standards, who are named by the Secretary of Agriculture, with power to act with the assurance that any action they may take will be ratified by the executive board and later by the association. The recommendation was finally adopted.

Despite considerable competition from other prominent cities, Duluth, Minn., was selected as the next meeting place of the association.

The address of President Rose was in part as follows:

The President's Address

"CONSIDERING the comparatively short time since the adoption of the National Food and Drugs Law, June 30, 1906—sixteen years—and also considering the various conflicting, often diametrically opposed, State laws then existing; the result of these annual conferences has largely simplified our labor by the exchange of views and experiences, and has, by such cooperation, largely simplified our procedures, resulting to a large degree in more uniform rules, definitions, and standards, regulations and practices; largely to the benefit of the legitimate manufacturer of honest goods, truthfully labeled, and of the consumer.

An Official Organization Suggested

"As stated at our convention at Miami last year, 'while this was originally an association of officials, it was not then (nor is it now) an official as-

sociation, being simply a voluntary association of National and State officials, striving to correct the various abuses then so prevalent in all parts of the Union.'

"To a lesser degree, similar conditions still exist. The necessity is evident for organizing this voluntary association into an official association, recognized by the Nation and the various States of the Union as their official representative in matters pertaining to the administration of National and State dairy, food and drug laws; and to thus obtain more uniformity in procedure in the protection of the consumer of dairy food and drug products, and the manufacturer of honest goods truthfully labeled; and particularly to provide a reasonable and equitable appropriation by the nation and various states, necessary for the proper performance of its duties.

I trust this suggestion will be carefully considered by the members of the association.

Cooperation

"The idea of National and State cooperation was first advanced by this association. Its usefulness is now acknowledged, I believe, by all. The Office of Cooperation, first established at the suggestion of a committee of this association, has become of vast importance to the nation, and particularly to the various States who now are enabled to get prompt information of the activities of the various National and State dairy, food and drug officials. Reports of violations, results of prosecutions, etc., are promptly reported to each State official for his guidance under similar conditions. I, however, fear that a number of our State officials do not promptly give such information to the Office of Co-

operation of the United States Bureau of Chemistry. All those who are charged with the enforcement of the dairy, food and drug laws, either National or State, should promptly report any action taken by them for the protection of the consumer and honest manufacturer of wholesome, truthfully labeled dairy, food and drug products, to the Office of Cooperation, in order that all control officials may be advised of the results of such action.

"With the recent organization of three distinct branches of the United States Bureau of Chemistry, in New York, Chicago and San Francisco; with sixteen food inspection stations of the Bureau of Chemistry conveniently located at Baltimore, Boston, Buffalo, Chicago, Cincinnati, Denver, Kansas City, Minneapolis, New Orleans, New York, Philadelphia, St. Louis, San Francisco, San Juan, P. R., Savannah and Seattle, together with the office of Cooperation at the Bureau of Chemistry at Washington, there is no reason why any State control official cannot obtain prompt and efficient cooperation with National officials in the performance of his duties; in the protection of the consumers of his State, and the manufacturers of honest goods, truthfully labeled.

"My personal opinion is that we now have a system of cooperation by which, if we as State Officials take advantage of it, and do our part of cooperation (by promptly consulting the Office of Cooperation or the nearest food inspection station), we can correct many abuses, and doubtless teach manufacturers of questionable food products that 'honesty is the best policy.' Florida has found that in cooperation with the Southeastern food inspection station at Savannah, Georgia, prompt action has been had in the correction of abuses and violations of both National and State laws.

"While much has been done, there still remains much to be accomplished to reach anything like a perfect system of control of the dairy, food and drug products of the Nation and the various States. Such efficient control, in my opinion, can be accomplished only by a more perfect system of cooperation between the Nation and the States, in the enforcement of the National and various State laws. Particularly does this apply to that enormous portion of dairy and food products shipped in interstate commerce. Few, if any, manufacturers of staple goods now confine their trade to a single State, hence must comply with both National and State laws to legally ship their goods in interstate and intra-state commerce. A number of our States have adopted regulations, standards and definitions in harmony with the National law and regulations thereunder; which has largely simplified the work of both National and State officials.

Uniform Rules, Regulations, Standards and Definitions

"Those States which have adopted the rules, regulations, standards and definitions of the National food and drugs authorities (not inconsistent with the provisions of the local State laws) have doubtless succeeded best in protecting the citizens of their State from illegal goods shipped in interstate commerce, into their own and neighboring or adjoining States; while they readily control such local manufacturers as confine their products to local or intrastate sale. Such local manufacturers can promptly comply with the National law, rules, regulations, standards and definitions when their product is of such excellence and reputation as to create a demand for their goods by other than their home State.

Uniform Dairy, Food and Drug Laws

"I am impressed that a uniform law for the Nation and all States is not practical, and will probably never be enacted, acceptable generally to the States.

"As well known to most, if not each of you, our American Bar Association and many State bar associations have advocated uniform laws on various subjects, particularly commercial subjects; and notoriously, the various divorce laws, for years, without making the progress desired towards uniformity. Many States have local or intrastate banking laws, differing from those governing National banking.

"States may, and doubtless have, adopted many of the rules, regulations, standards and definitions of the National laws; while the State statute differs in many provisions. Differences have occurred simply in nomenclature; names or definitions of the same substance; the name selected by the manufacturer being a misbranding under the State law.

"I am, therefore, impressed that the subject of uniform laws, at the present time, is not practical. As we are all aware of the divers conditions, the various products, agricultural and industrial, of the forty-eight different States of this immense Union of States, I need not call your attention to conditions, legal in one State, which are illegal in others.

Divers Conditions of Climate, Agricultural Products and Manufacturer

"When we consider the enormous area of this Nation, from Canada to Mexico and into the Gulf, from the Atlantic to the Pacific, with her island possessions in tropical seas, the Gulf and the Pacific—Hawaii, the Philippines, the Virgin Islands, to say nothing of Cuba (which, under her constitution, is but a territory of the United States, liable at any time to intervention by the United States to protect the interests of our own or Cuba's citizens); when we consider the vast di-

versity of our agricultural products—the hard wheats of the North and Northwest; the soft wheats of the Central and Southeastern States; the dairy interests of the Northeastern and Western States; the fishing industry of the East, South and Northwestern States; the cotton of the South, with its valuable food products—cotton seed oil and meal, most valuable human and stock food; the citrus and other fruits of California and Florida; without mentioning other staple agricultural food products, peanuts, soy beans, and the enormous commerce in winter vegetables, particularly tomatoes, early potatoes, with various tropical fruits, nuts and oils from California, Florida, and particularly from the Philippines, Hawaii and other tropical colonies and possessions; with all the various conflicting interests of American citizens producing, manufacturing and transporting in interstate commerce, these divers dairy and food products, agricultural and manufactured, from American States and territories; all under the protection of, and also liable to the penalties of our laws, National and State, under which the rights of all American citizens are protected, under the law; as I say, when we consider all these divers conditions, in my opinion, any legislation, National or State, that attempts to debar or prevent the sale of any recognized wholesome food product, properly and truthfully labeled, with no misrepresentation by 'design or device,' misleading illustration or picture, or otherwise deceptive, would be 'an economic blunder, bearing heavily upon the manufacturer (or producer) of these valuable foods, and particularly upon the consumer of these valuable and well-known food products; an economic waste of most valuable food,' and would violate the rights of many of our producers and manufacturers of foods, and the rights of our citizens generally. We should always remember that 'where the rights of one citizen end, the rights of all other citizens begin.'

Vitamines A, B, C and D

"During the last few years much has been discovered and published by eminent scientists, particularly biologists and dietitians, in reference to vitamins; much has been published in various popular journals; wonderful effects of certain proprietary substances have been advertised; certain preparations have been extensively lauded for their wonderful value as food auxiliaries for the cure of various alimentary disturbances, dyspepsia, indigestion, etc. The subject has been threshed out in Congress and before State Legislatures, by eminent scientists, pro and con. Scientists of equal ability, experience and reputation, retained by the contending parties, have not agreed; while propa-

ganda has been used extensively by both sides of the controversy.

"Comparatively few scientists, to say nothing of the great American public, have had time or opportunity to follow the discoveries, much less to study the results of various experiments, nor to draw intelligent conclusions therefrom. The field opened is a broad one, and apparently rapidly broadening, until there are now four of these unknown, non-isolated substances recognized by most eminent biologists.

"The literature published during comparatively recent years has been voluminous. With the limited time at

my disposal, I have carefully read 'The Newer Knowledge of Nutrition,' by E. V. McCollum, 1919; 'The Vitamines,' by Casimir Funk, Associate in Biological Chemistry, College of Physicians and Surgeons, New York City, 1922; and particularly 'The Vitamins,' by H. C. Sherman, Professor of Food Chemistry, University of Columbia, and S. L. Smith, Specialist in Biological and Food Chemistry, U. S. Department of Agriculture.

(Capt. Rose quoted at length from the last-named book.)

"The position assumed by myself in my remarks at Miami last November on this subject has not been changed

by more extensive study of this important subject. Until more definite and positive information has been had as to what effect modern milling of grain—wheat, maize and rice—or refining of vegetable oils—cottonseed, peanut, soy bean, cocoanut and palm oils—has upon these important substances, vitamins A, B, C, and D, it will be well for legislative bodies, National and State, in the interest of 'all the people' (i. e., the consumers) to consider carefully any action which will tend towards increasing the cost of food by preventing the sale of any wholesome food product, truthfully labeled."

Cooperation of Food Officials With Manufacturers

Speaker at Convention Points Out Ways in Which Each Group May Help the Other

By WILLIAM H. LONG

Law Department, Libby, McNeill & Libby

ANY one who looks over the program of the convention is impressed with the fact that trade delegates are imbued with the idea of cooperation, but cooperation is a comprehensive term. The manufacturer thinks of cooperation from the viewpoint of his business, while food officials think of cooperation as assistance from manufacturers in enforcement of the laws. Both manufacturers and food officials sometimes overlook the public. The purpose of all cooperation between the trade and National and State officials should be for the public good.

Not long ago in one of the leading agricultural papers there appeared a diatribe against a certain governmental department for the reason this particular department had shown itself friendly disposed, or was thought to have shown itself friendly to certain manufacturers. Possibly such articles are common. This farm journal seems to think Government departments exist merely to further the interests of one class. Such an attitude is unfair and unjust. I do not mean by cooperation, favoritism or special privilege, but if this is a government for the people it exists as much for the manufacturer as for the farmer or the public in general.

An Example of Negative Cooperation

The company I represent has some interesting experiences in the matter of cooperation. As an illustration of negative cooperation I might mention within the last few weeks that we endeavored to enter one of the mid-Western cities for the sale of con-

Address at convention of Association of American Dairy, Food and Drug Officials, Kansas City, Mo., Oct. 3-6.



William H. Long

densed and evaporated milk. This particular city has an ordinance that is probably unconstitutional. The ordinance prohibits the sale of evaporated or condensed milk if from sources that have not been inspected by city authorities. This question has been passed upon by the United States Supreme Court a number of times and it seemed all that was necessary in this case was to point out to the city officials in question the decisions of the Su-

preme Court. This health commissioner, however, refused absolutely to discuss the validity of the ordinance. He said he was for State rights and city rights, that he had written the ordinance and didn't care particularly whether it was constitutional or not and would not consent to take the matter up either formally or informally with the corporation counsel.

As he left the matter, we had our choice of abandoning our constitutional rights or resorting to litigation, and everybody knows no one desires unnecessarily to embark in litigation. Although this particular city officer may be public spirited and doubtless is doing a great work in protecting his city from contaminated fresh milk, there should be some way to accomplish his purpose and still permit the introduction into his city of pure, wholesome canned milk even if from a source outside his State and uninspected by him. This is clearly a case that calls for cooperation. A food manufacturer is entitled to the privileges and rights the constitution and statute allow and is entitled to look to food officials for cooperation in obtaining such rights.

An Experience With Positive Cooperation

At or about the time the difficulty above mentioned arose, we were afforded in an adjoining State one of the clearest illustrations possible of positive cooperation on the part of a food official. We received word from one of our customers that State inspectors were making the rounds advising dealers that since certain of our canned meats did not carry a paper label, although the necessary information was imprinted on the can,

the same could not be sold. We immediately communicated with the State food commissioner, called his attention to the matter and asked for a construction of the statute. Within thirty-six hours we received a reply from him that he had called the inspector in, found the facts to be as we had stated them, and had sent the inspector back over the same trail he had come to advise the various merchants that our goods were correctly labeled.

Frequently cases arise where food commission employees, just like employees of an industrial concern slip over the traces and through a mistake stop the sale of goods or make disparaging statements without official sanction. Often no positive steps are taken to correct the injury, but you can well understand where we get cooperation such as from the official just mentioned above we scrupulously seek to meet the State food department more than half way in any matters that may arise thereafter.

Industry Should Be Encouraged by the Commissioner

The laws of the State just referred to carry provisions I would like to see written in statutes of every State. One section makes it the duty of the food commissioner to foster and encourage the dairy industry and to investigate general conditions of creameries and condensaries. Another section makes it the duty of the State commissioner to foster and encourage canning and to make rules and regulations to further the welfare and well being of the industry.

Even where food officials do not feel called upon to take positive steps for the furthering of food industries they can do much to smooth the way of needless and burdensome restrictions under the statutes. With very few exceptions food officials generally en-

deavor to enforce the spirit of the laws and overlook minor infractions, nevertheless there was one instance this year where the sale of our goods was stopped by Canadian officials because the type on the label was short by 1-64th of an inch.

Whenever the sale of goods is held up the manufacturer becomes vexed and irritated but when these instances are forgotten we realize that most of the restrictions in the end result in good for the industry. In fact most manufacturers are in accord with the purpose of all such laws. My own company constantly strives to raise and maintain the highest possible standard for its products.

Disgruntled Customers Often Use Food Officials

Few people realize how frequently disgruntled customers attempt to use food officials as collectors. In some instances it amounts to blackmail. Last year one customer induced the food commissioner of his State to libel several barrels of milk powder he had improvidently stored in a damp basement. Investigation showed this milk had been sent out in perfect condition. In another instance a State's attorney threatened us with criminal prosecution unless we would pay \$2,000 to a client on an entirely baseless claim. In still another proceeding a fish canner over-bought mustard made according to his own specifications. He appealed to the food department and we had to refund his money merely because the barrels had not been stenciled correctly.

One of our managers received a claim from a certain party who described himself as editor, lecturer and publisher. In the first letter he depicted the results of eating the product. He said:

It took my strength, affected my head,

my eyes, and nerves. Eight days after eating many hives the size of dimes appeared on my body. Before this affliction I was tireless—capable of prolonged effort. Now a very little effort fatigues me.

In his second letter a month later we get this delicate reference:

Gentlemen:

The potency of voice and pen for the coming years of an enthusiastic publicist who will greatly appreciate prompt amends for a personal injury is apparent to every one as a priceless asset. I have full confidence in your desire to do complete justice.

We had the case investigated by the United States Health Service. The man's own doctor said there was nothing the matter with him, and that the food was absolutely all right.

Officials Should Further Development of New Foods

Viewed in the abstract I sometimes think food officials as a whole overlook one important service to their country. It seems to me that it should be particularly within the scope of the duties of food officials to further the production of cheap foods. Let me say the corporation I represent manufactures no substitutes and is opposed to imitations but as an individual I believe as our population increases cheaper foods will become more and more necessary. There are organized minorities that oppose the introduction of new foods, particularly if they come under the condemnation or within the category of substitutes or imitations. Years ago my imagination was stimulated by the prophesy of Jules Verne that in years to come the human race would be fed with nitrates manufactured out of the air. This may never be realized but there are discoveries just as wonderful and it should be the duty of food officials to further the development of new foods for the human race.

The Medical Examination of Food Handlers

By CHARLES V. CASTER, M.D.

Health Officer, Newark, N. J.

IT has been asked: "Is the physical examination of food handlers possible for small communities in the light of its cost for specialized assistance?" The answer will depend upon the point of view and whether a medical or a sanitary inspection is contemplated. If the latter, the necessary examinations may be made by any well-equipped physician employed by a local board of health, assisted by a good laboratory, inasmuch as the greater part of the examination is routine laboratory tests for diphtheria, typhoid fever and venereal diseases. On the other hand, a complete medical examination means the employment of many experts.

Summary of a paper read at convention of Association of American Dairy, Food and Drug Officials, Kansas City, Mo., October 3-6.

Granted that the expense for this special preventive activity can be met, are the results worth while?

Although the findings of the examinations for a period of two years in the City of Newark indicate that contagion is not more prevalent among food handlers than among any other body of industrial workers, the evidence gathered shows that many of them were found to be employed whilst in a diseased condition. In as much as in no other business is there so much danger of spreading infection as between infected food handlers and the consumer, the safeguarding of the public in this way is well worth while. It has been shown that even in its early stages it has had a remarkable effect upon the general welfare of the food handlers, eliminating from this group

of workers the cheap labor of diseased persons from other occupations who might seek the lighter and more elastic hours of food handling. This is particularly true of food handlers for the reason that many are part-time being frequently recruited from the married women and mothers of families who have some of their day at their disposal for industrial purposes.

From the point of view of preventive medicine, there can be little doubt that the physical examination of food handlers has come to stay, taking its place with the supervision of mother and baby, and the medical inspection of school children, as a community effort to control disease and prolong the span of life which the public can justly demand as a necessary municipal undertaking.

Developments in Food Law Control

Task Has Become Tremendous in Industry Which Has 67,453 Manufacturing Establishments

By WALTER G. CAMPBELL

Acting Chief, United States Bureau of Chemistry

A CASUAL review of the progress made within the last few years in food law control will indicate certain very significant developments. The most outstanding of these has been the effort to unify legislation. This tendency is natural and is the outcome of a realization gradually acquired of the fitness of certain forms of legislative expression to control more adequately traffic in dairy, food and drug products than could be claimed for the initial acts. There was a pronounced dissimilarity in form and context of the state laws as originally enacted, notwithstanding the purpose in most instances to achieve a common end. Efforts to effect amendatory legislation as existing deficiencies were recognized resulted eventually in the enactment by the legislative bodies of most of the states of measures which in their general character were very much alike.

One of the most important functions of this association as an organization was to bring about such uniformity in legislation. Committees have reported model bills which were usually accepted by those states undertaking new legislation of this kind, until today with a few exceptions in which certain prohibitions have been particularized all food and drug control measures are comparable in their cast. This cannot be claimed as the attainment of perfection in these statutes. It indicates rather a recognition of the fact that laws with common exactions permit more efficient supervision universally of the traffic in foods and drugs. This has the dual advantage of guaranteeing a uniformly high measure of protection to the public and at the same time interfering in the least possible way with the commercial enterprise of producing and distributing foods and drugs. Undoubtedly, the passage of the Federal law has had a marked influence in this direction. That law was not passed until after legislation by several of the States had been enacted. The Federal law is a supplement to the State laws, and due to the limitations which a statute of this character inherently possesses it can guarantee only in part protection to consumers.

Paper read at the annual convention of the Association of American Dairy, Food and Drug Officials, Kansas City, Mo., Oct. 3-6.

The Magnitude of Food Control Work

ALWAYS the work of food law control has made an appeal to the earnest conscientious quality, and never more so than today, says Walter G. Campbell, acting chief United States Bureau of Chemistry, in his paper, reproduced here, which was read at the annual convention of the Association of American Dairy, Food and Drug Officials at Kansas City, Mo.

Mr. Campbell points to the magnitude of the present task of food law control by citing the figures of the Bureau of Census for 1919, showing that 67,453 establishments were engaged in the manufacture of food products having a total value of upwards of 13 billions of dollars, not taking into account non-manufactured foods such as milk, fresh milk, wheat, corn, oats, fruits and vegetables. Added to these are foreign foods to the value of \$672,975,000, which were imported during 1921.

Mr. Campbell suggested the promotion of an effort to weld all of the Federal, State and municipal food administrations into a compact unit whose purpose can be made identical without the impairment of the independence of individual direction. His paper, which suggests the future development of official control of the manufacture and distribution of food products is a valuable contribution to the study of proper guardianship over the nation's food supply.—THE EDITOR.

Identical Laws Not Always Desirable

The Federal Food and Drugs Act, like all legislative measures which encounter opposition, is the result of compromise. Compromise measures are never wholly satisfactory. There are a great many features in which the Federal law could and should be improved. If it should ever reach that form of perfection which would give in no particular a basis for serious criticism, it is doubtful whether a continuation of the effort thus far manifested for uniformity in legislation should extend to the point where the state laws would in all of their requirements be identical. On account of our diversified life and varied manufacturing and commercial practices; on account of the preponderance of cer-

tain food producing industries in one section and the total lack of their existence in another; on account of the fact that there inevitably will be conditions, both social and industrial, in some portions of the country which may be regarded as unique to such localities, there unquestionably will be, and in my judgment should be, a disposition to enact special laws which will permit adequate control of these conditions, the necessity for which may not obtain in any other section.

Food and drug control legislation in this country was an innovation, and like all pioneering enterprises underwent in its earlier stages those transformations which dealt largely, if not exclusively, with fundamental matters. Conflict in the provisions of food laws may at this time present both to manufacturers and to officials who naturally are concerned with the degree of protection assured to the public, a very real problem. This body is definitely committed to the correction of this condition and time undoubtedly will bring it about.

Uniform Administrative Policies Attainable

It seems to me that we are at the period when consideration very seriously should be given to other methods by which community in purpose and in results may be guaranteed. There can be nothing which should stand in the way of the adoption immediately of uniform administrative policies. The laws are sufficiently alike and the tendency toward their observation sufficiently general on the part of producers to make possible the adoption without delay of uniform administrative policies, which in some respect will neutralize the incidental variations in statutes.

For instance, it is possible for us even though working under varying laws to have practically the same standards. It is only in rare instances that food standards are prescribed by legislative enactment. The Joint Committee on Definitions and Standards was created for the very purpose of providing uniform definitions and standards for all food and drug control officials.

Changed Standards to Meet Changed Conditions

This committee, as you know, is composed of representatives from this Association, from the Association of Official Agricultural Chemists and from the Department of Agriculture.

The conclusions of the committee, if approved by these associations in their annual conventions and by the department, are promulgated as official standards. These standards give notice to the public and to manufacturers of the tolerances or the minimum limits which should obtain in the production and preparation of food products.

It is assumed that articles failing to meet the requirements of such standards are in violation of the law. The Bureau of Chemistry, due to the fact that the departmental representation on this committee consists of members of that organization, has a sympathetic and very real interest in the deliberation of the committee on any subject whatsoever. It has, however, a concern of another and very important type. As the designated enforcing agency for the Federal law it becomes its duty to uphold these standards and to compel through the terms of the law their observation.

This committee has performed, and is performing, a most worthy service. Even before the passage of the Food and Drugs Act, and in anticipation of the requirement of a service of this character, which was very definitely realized in the actual enforcement of the act, Congress authorized by specific appropriation the expense incident to the work of such a body. A great many of the standards upon which we are now operating were standards that were conceived and promulgated by the original committee. This is a splendid testimonial to the thoroughness with which it discharged its duty.

As time progressed, however, there were recorded not alone those changes in manufacturing practices necessary for meeting in general the requirements of the law but a tendency toward progress promoted by competition or a natural desire for improvement rather than by a wish to inaugurate a change because the old method was outlawed. These changes frequently were material, and presented advantages from both an economic and a nutritional standpoint. Such modifications, however, in several instances were not permitted by the literal terms of the standard.

I take it that in safeguarding the food supply of the public there is no feature of food and drug legislation which would discourage or deny progress where it was to the advantage rather than to the detriment of the public. There is perhaps not a single executive who has not had the experience of being required to express his attitude with respect to meritorious innovations in manufacturing practices, which in some particular were in conflict with or not provided for by the standards under which he was operating. Since the standards as they are promulgated today represent the views and expressions of state officials in the same degree that they do of the Federal Government, and since under

the present procedure attempts at revising standards which may have become obsolete or for other reasons are insufficient or inadequate are attended with delays, I offer the suggestion that one of the measures which this association very appropriately may consider in its effort to prescribe ways and means for dealing effectively under existing laws with current conditions is the determination of some procedure by which a revision of old standards or the adoption of new ones may be brought about more expeditiously.

New Plans to Meet New Conditions

Not alone in the matter of standards, however, can changes be made advantageously to meet changed conditions. The efficient enforcement of food laws require the creation of a proper organization and a determination of adequate administrative plans. I am sure that the experience of the Bureau of Chemistry in the enforcement of the Federal law has been very similar, if not identical, with the experiences of the various State commissioners.

Conditions existing at the time of the passage of the Federal Food and Drugs Act were quite different from those which obtain today. Manufacturers awoke to the fact that overnight practices which had prevailed in their factories for years, perhaps generations, were outlawed. Products which had been made under a definite formula and for the sale of which a very substantial trade had been created were under the terms of this law adulterated and their continued marketing prohibited. Labels which had become characteristic of the products of individual firms and which represented a substantial good will were condemned. The food or drug product not technically or substantially in contravention of the law was the exception rather than the rule. In short, there was required a readjustment in the production and sale of food and drug products which was slightly short of revolutionary. There followed immediately a period of industrial reorganization through which most manufacturers voluntarily accommodated themselves to the requirements of this law in so far as its requirements at that time could be determined.

While the law is criminal in caste it is recognized more as a corrective than a penal measure. The Bureau of Chemistry realized its obligation to acquaint food manufacturers in so far as it was possible to do so with the nature of its exactions. This undertaking due to the decisions of appellate courts became less of a conjecture and more of a fact as time elapsed. Eventually the scope of violation was reduced until the ordinary case was one which came within a debatable zone. This necessitated a new consideration based upon more extensive information concerning manufac-

turing practices and greater knowledge of the law as interpreted by the courts.

Such a change in conditions required a corresponding change in organization, which was attended by corresponding modifications in the prevailing system of administration. On account of the territorial expanse covered by the bureau's activities it was necessary, if expedition were to be considered, to create proper methods for the delegation of a certain administrative authority as exemplified in the decentralized system now in vogue. Effective administration of an organization of this character necessitates the establishment of means by which unity in viewpoint is assured and consideration of all phases of work in all branches guaranteed. Otherwise action will be dictated by opportunism with different subdivisions proceeding on varying subjects in individual and varying ways to conclusions inevitably unsatisfactory and perhaps contradictory.

Plan Program of Work by Projects

To provide for systematic investigations, uniform procedure and sympathetic administration in every unit, the Bureau of Chemistry has adopted a project plan of work. This simply means that there has been determined prior to the beginning of the fiscal year an outline of work to be undertaken by every station of every district and contemplates that attention will be given to the individual topics of this project or schedule of work in every section of the country at the same time. Before laying out a campaign to correct any particular trade abuse which violates the provisions of the Food and Drugs Act, a careful survey of the industry involved to determine the extent of the violation and its effect on consumers and the trade is made by the units of the field force that are in best position to do it effectively, and a preliminary plan of action prepared. This plan is considered by the administrative officers of the bureau and by the staff specialists in the light of the knowledge developed by the survey and investigations in the staff laboratories. The value of the work to be done and of the evidence to be obtained is determined and a definite plan of action provided. It then becomes a part of the schedule of work for the year and the districts proceed to carry it into effect.

The success of this plan of control involves a proper understanding between the administrative officers of the field and those in Washington. This is brought about chiefly by the special or staff laboratories and the officers of the bureau whose services are of a liaison character. The plan is thoroughly co-operative and contemplates a proper articulation of every agency whose work has any bearing on any one of the schedules. This system of

administrative control is now definitely established. The change to it was not revolutionary, but took place gradually with a realization that the industrial developments necessitated a more comprehensive study of manufacturing practices than it was possible to make under the organization and administrative arrangements which had previously existed.

Very naturally the field stations have always had a primary interest in the food producing enterprises that characterize their localities. Under any plan of administration the shellfish industry will be of importance to the Atlantic Coast stations and the production and shipment of citrus fruit a matter of first concern to the field forces operating in California and Florida. The production of these products, however, is seasonal. A proper utilization of the time of employees no matter where located requires that their operations through periods when concern with such seasonal food supplies is not necessary to be determined in a definite way. If the adjacent stations alone are expected to interest themselves in the food supplies characteristic of a locality, inevitably information will be lacking concerning the actual conditions under which such products find their way into interstate commerce and eventually into the hands of the consumer.

No matter how localized the production of a food product may be, no matter how little interest one State may have in such an enterprise because of the absence of any manufacturing industry of this sort within its borders, we know that the existing commercial facilities which will permit the transportation of even the most perishable products to the remotest corners of the country make the matter of regulating the sale and the consumption of such articles a matter of common interest.

While Missouri and Kansas from the standpoint of their food control organizations may not be interested in the appropriate regulation of the manufacture of chocolate, the canning of shrimp and innumerable other articles which constitute a daily or a frequent diet for the consuming public, such States will be the better prepared to prescribe equitable and effective regulations for the sale and consumption of such products if they possess the advantage of that knowledge acquired by those organizations under whose supervision or control such products are manufactured or produced. That full information upon which the administrative decisions of the Bureau of Chemistry are based in the enforcement of the Federal Food and Drugs Act requires knowledge of both producing and distributing conditions, and this can be obtained only by employing in a common cause and under a common plan the forces frequently of the most remote field stations.

In evolving this administrative system the bureau directed, after sufficient progress had been made, that appropriate stations acquaint the State officials within their territorial limits of the character of the project plan. This was done for two reasons: first, because it was conceived that in advancing in the fullest degree that co-operation between city, State and Federal officials to which the bureau is so definitely committed, they should have knowledge of our program; second, it was felt that such virtue as this plan possessed within itself as a means for more effective universal control would be recognized by State officials and that in consequence of this such participation as they might take in any investigation common to themselves and the appropriate bureau field organization would be with a better understanding of the purpose of such work.

Huge Task Requires Concerted Effort

To my mind one of the most valuable realizations from the adoption of this plan within the bureau has been the emphasis with which there was revealed to every unit of the field organization the enormity of the volume of work to be done. Formerly the activity of a particular unit was dependent very largely if not entirely upon the conception which its head entertained concerning the scope and the character of his own activities. Never to the extent that it exists today has there been on the part of officers in our organization a realization of the total inadequacy of our force.

In order that you may entertain some idea of the magnitude of the task with which we are confronted, you may be interested in knowing that the latest statistics of the Bureau of Census of certain manufacturing industries show that in 1919, 67,453 establishments were engaged in the manufacture of food products, the value of the annual output of which was \$13,391,914,000. These figures relate to manufactured foods only and do not take into account that great volume of commerce in non-manufactured foods such as milk, fresh fish, wheat, corn, oats, fruits and vegetables, and the like. Add to these the bulk of food products imported into this country, which during the calendar year of 1921 were valued at \$672,975,000. From the Federal standpoint alone the cost of supervision has been less than one-hundredth of one per cent of the value of these products.

Our combined task is large. If the public is to realize that benefit which it contemplates through the enforcement of such laws it is absolutely imperative that the effort of every agency, whether State, city or Federal, be directed in such a manner as to produce in the aggregate the greatest results. The fact that effective and equitable administration requires exhaustive investigations which were not always formerly needed makes food

law enforcement today a more difficult and a more expensive undertaking than it was yesterday. Continued developments in this direction, and undoubtedly they are assured, emphatically point to the need for the creation of some provision existing between Federal, State and municipal authorities which will make possible a realization in the fullest sense of that term of genuine co-operative effort.

I have always felt that aside from the commendable purpose which was responsible for the enactment of legislation of this kind, aside from those fairminded and judicial instincts that are prerequisite absolutely to the proper administration of such laws, the task itself is one worthy of the effort of any man imbued with the desire to make a contribution to the social and commercial improvement of the country. Always this work has made an appeal to the earnest conscientious qualities, and never more so than today.

A Common Plan for a Common Object

One of the signal achievements of these deliberations which may result from a convention of officials interested in this common purpose in my opinion would be the determination of some means by which not only greater efficiency could be developed in the individual organizations, Federal, State and city, but in the effect which would be produced by a proper and sympathetic articulation of their work. This can be done only by recognizing the common character of the task with which all food law enforcing agencies are confronted. From the experience which the Bureau of Chemistry in its particular sphere has had I venture the presumption that the promotion of an effort to weld these multiple organizations into a compact unit whose purpose can be made identical without impairment of the independence of individual direction, can most effectively be accomplished by the inauguration on the part of States and cities where such is not now the case of programs of work comparable in scope and subject matter to the project scheme at present in vogue in the Bureau of Chemistry. The establishment of city and State organizations upon an administrative plan of this character will obviate such tendency as would otherwise exist toward the creation of lost motion by duplication or through the failure to obtain that concerted action of all regulatory agencies which is absolutely essential. This will give stability and permanency to the undertaking even though it be localized.

A program of this character contemplates concentration in attention and effort with the consequent result that service in this fashion gives an opportunity for the acquirement of better experience. Experience in turn asserts its own value, and will have a tendency toward directing recognition by appropriate authority of the import-

ance of perpetuating competent State and city officials in office. Because of its specialized character in which training through experience is of the first importance there should be in those localities, where it at present is not the case, some means of continuing permanently in all positions those officers who because of their experience and fitness are best qualified to place and maintain State and city food and drug control work upon the highest plane of efficiency.

In its conception of a proper co-operative relationship with State officials the Bureau of Chemistry through the Office of Co-operation has sought to make available to the State organiza-

tions that material of a scientific character which it had obtained in the course of its investigations. Because of its specialized staff laboratories and the opportunity which such laboratories have had for protracted periods without interruptions to study questions of a manufacturing and of a laboratory character, the bureau has obtained perhaps more information of a kind badly needed by all administrative units than it would have been practicable for the states either independently or in concert to have obtained. The dissemination of such information, in short making available to State and city officials knowledge of whatever kind the bureau might have

on any question whatsoever has been a service which the appropriate unit of the bureau has sought to perform most conscientiously. I have, of course, no knowledge of the specific value with which such material has been appraised. I am certain, however, that intimate knowledge on the part of state and city officials of the schedule of work outlined by the Bureau of Chemistry would make such material of greater value because of their concrete knowledge of its purpose. This especially would be true if the city or State organizations could consider sympathetically such data as a result of their operations under a comparable plan of control.

Sanitation in the Baking Industry

Results of an Investigation Conducted by Public Health Service for American Bakers' Association

By WILLIAM C. WITTE, M.D.

Surgeon, United States Public Health Service

THOSE industries producing and distributing foodstuffs to the general public, especially when the food is prepared and is to be eaten without further cooking by the consumer, should have a considerable interest in the matter of sanitation. There are three distinct reasons for sanitary practices in these industries:

1. Sanitation protects the product from contamination and spoilage and means money in the pocket of the employer.
2. Sanitation provides a clean and wholesome product and thereby protects the public health which is a moral obligation each manufacturer or producer owes the general public.
3. Sanitation protects the health of the worker in the industry and the employee has a right to expect this protection.

Sanitation is defined as "the devising of measures for preserving or protecting the public health." Better still, it may be defined as the "common sense application of the principles of cleanliness." The present interest in sanitation and sanitary practices is of fairly recent origin. Previously the average employer and employee had given but little attention to the matter of health and sanitation. The employer felt that the introduction of modernized equipment and the raising of the standards of the employee would cripple industry, require increased wages

and perhaps lower the morale of the worker. The employee looked upon the introduction of health standards and sanitary requirements as an encroachment on his personal liberty. Through the efforts of farsighted public officials, and by education of the general public, sanitary practices have been required by law and the public has come to require its food to be handled in a cleanly manner.

In this connection it might be noted that the World War has very forcibly brought to the attention of the general public the needs of sanitation and the reasons for the adoption of sanitary practices. The soldiers were taught that cleanliness of environment and cleanliness of person would do much to reduce the spread of communicable diseases. They were also taught that the use of vaccines and serum was an adjuvant in the prevention of certain communicable diseases. Prevention of disease, personal hygiene and sanitation are now being taught in most of our public schools. Public lectures on this subject are now receiving favorable reaction and it is thought that in the immediate future the preservation of the public health will be one of the most important, if not the most important, functions of the nation.

Certain industries are coming to realize more and more the needs for adoption of sanitary practices and several of them have gone so far as to attempt the regulation of these practices within their own industry. A notable instance of this is the action of the American Bakers' Association in adopting a sanitary code, which code is subscribed to by each member

of the association, with a view to raising the sanitary standards of the industry and doing away with insanitary practices.

The Public Health Service was asked to assist this industry in carrying out the provisions of the sanitary code and I was detailed for this purpose. In order to begin the work, it was necessary to obtain information concerning the conditions at present existing in the industry, and in this connection it was decided to ask the aid of the already existing law enforcement agencies in the States and municipalities of the country.

Survey Made of Sanitation in Baking Industry

Through cooperation with the food, drug and dairy commissioners of the several States I have secured a fairly representative survey of the sanitary conditions existing at present in the baking industry. May I at this point extend to the commissioners and their assistants assembled here my acknowledgment and the thanks of the American Institute of Baking for the splendid way in which they have given of their services to make this survey a success. This survey includes plants of all kinds from small retail bakeries to wholesale bread factories employing over two hundred men and women. The buildings housing these plants vary from old dilapidated frame store buildings to the most modern of factory construction. The investigation of the sanitary conditions included notations regarding employment records, physical character of building, storage of raw materials, sanitation of work

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rooms, process, handling of product and waste products, personal service facilities, and data concerning medical supervision of employees.

The blank which was to be used for the securing of this data was devised by the Industrial Hygiene and Sanitation Division of the Public Health Service. While this blank was considered more or less complicated by some of the State officials, yet it was desired that it should be comprehensive enough to secure data concerning the sanitary conditions of the various plants in so far as they would affect production and the health and hygiene of the workers in the industry.

It will not be possible in this paper to give a detailed report of this survey. However, there are several items which are of more than passing interest. The employment records did not give much opportunity for study of labor turnover or absenteeism, and it is felt that this is a matter which should receive some consideration in the future, as by such study it is possible to determine conditions relative to the health of the workers and the hazards of the industry.

Findings of the Survey of Bakeries

The reports showed that the baker is improving his method of handling raw materials so as to prevent spoilage and depredation by insects and rodents. It is believed that this is the first and one of the most important items in better bakery sanitation. Chapman in Bulletin No. 193 of the University of Minnesota Agricultural Experimental Station shows how the business of the baker is injured by insects in flour and other raw materials that contaminate his finished product. He states that insects are usually brought into the bakery with the flour and he stresses the necessity for cleaning flour sacks and bakery cleanliness in general.

The general sanitation of the work rooms was reported as fair. Most bakeries were using machinery in the manufacture of bread; in some the process was entirely machine in character; some reports showed a dust hazard present in the work rooms and in some it was reported that these rooms were dusty and very untidy. The baker must be made to realize that sanitation of the work rooms is an essential factor in the protection of his product from spoilage by molds. A report of the investigation of "Molds in Bakeries" conducted under the direction of Dr. S. C. Prescott brings out very forcibly the necessity for bakery sanitation.

I desire to quote several of the conclusions arrived at by this study:

1. "The amount of mold infection is proportional to the sanitary condition of the bakery and decreases as this condition approaches excellence."
2. "Infection is due to air, handling, racks, machines and paper."

3. "Clean, cool air and sunlight have an inhibitory action on the growth of molds."

4. "Mold infection may be prevented to a large extent by sanitary precautions, such as daily scrubbing of floors; frequent washings of walls and ceilings with antiseptic solutions; filtering and washing of air in cooling and wrapping rooms; and use of live steam on machinery, conveyors, racks, etc."

It is obvious that insect pests, rodents and molds are expensive to the baker and he should know that clean shops, clean workers and sanitary practices will do much to overcome them.

Some Sources of Contamination

While it is not possible to develop sanitary conditions in a bakery or other food establishment to the extent that they are required in the operating room of a hospital, yet the nearer these practices approach that condition the less will be the dangers from contamination, dissemination of communicable diseases and injury of the health of the worker. Workers with clean personal habits will not indulge in insanitary practices. Carelessness in matters of personal hygiene encourage carelessness of sanitation of environment and the two bring about the existence of insanitary practices which are to be condemned. The worker should be taught that through unclean hands, the finished product may be contaminated and public health may be endangered. Bakery equipment, if unclean, is a mechanical transmitter of filth and disease. Flies in the bake shop are a source of danger, not only to the product but to the general public, because of their well known activity as a mechanical conveyor of infection. It is noted that most states require by law protection of foodstuffs from flies, and it is gratifying to note that our report reveals that practically all of the bakeries were completely screened.

The personal service facilities of bakeries need considerable improvement. Our survey shows that only 50 per cent of the toilet rooms were considered as clean, and only 70 per cent were properly located as to work process. While washing facilities of some sort were provided in all plants, 38 per cent showed common towels still in use. Fifty-seven per cent of the plants made provision for bathing by providing either shower or tub baths. With regard to drinking facilities, sanitary bubbling fountains were found in only 23 per cent of the plants; common cups were in use in 52 per cent. Rest rooms and rest periods for workers were reported as present in only a very few plants.

Health Conditions Among Workers

Medical supervision of employees is in a measure required by several States, either by Workmen's compen-

sation act or State laws requiring physical examination of employees, or laws requiring furnishing of medical certificates by employees before employment. The physical condition of bakery workers is noted in a report relative to the "Health of Food Handlers" prepared by Doctors Harris and Dublin. They show that of 274 bakers examined, 207 gave evidence of some disease or defect, while only 67 were entirely free from disease or defect. The common conditions found were pharyngitis, organic disease of the heart, anemia, pulmonary emphysema and poor oral hygiene. This matter of hygiene of bakery workers is an important one and should receive careful consideration, with a view of adoption of uniform State laws requiring physical examination of workers and the furnishing of medical certificates by all persons handling food products.

With regard to the dangers of the industry to the workers engaged, there is a diversity of opinion. Our survey notes dust hazards in work rooms and blending rooms, and heat hazards in oven rooms. Bulletin No. 306 of the Bureau of Labor Statistics, United States Department of Agriculture, notes the following hazards of the baking industry:

1. Sudden variations of temperature which might be responsible for congestion of internal organs, catarrh, neuralgia and rheumatic affections, pneumonia and Bright's disease.
2. Organic dust which might cause dryness of nose, throat and mouth, cough, asthma, bronchitis, emphysema and tuberculosis.
3. Carbon monoxide gas which might arise from faulty oven conditions which would cause headaches, dizziness, fatigue and general weakness.

In this connection it was desired to determine the reaction of the larger insurance companies as related to the insurance risk of workers in the baking industry. An inquiry was therefore addressed to four of the larger insurance companies regarding the insurance risk of workers in bakeries. One company reports "while the losses indicate that they are hazardous as compared with most of our selected occupations, we do not make any particular extra charge for them." Another reports that they consider journeymen bakers as only fair risks and offer standard insurance to only the best. Still another reports, "There is a general impression that the mortality among working bakers is high because of the confinement and of sudden changes in temperature to which they are subjected." The other company reports, "with regard to the attitude of insurance companies, we would say that so far as we know, most of the large insurance companies do not charge an additional premium

for bakers nor do they have any special provisions in their policies for any known hazard among bakery employees."

The statements of these insurance companies is based on experience tables compiled by their various companies or special investigating committees, showing the relation of actual to expected deaths. It must be borne in mind, however, that the experience is based on selected risks, men who were physically up to a certain standard at the time of the issuance of the policy.

It might be stated also that the hours of employment in bakeries has some effect on hazards in that most of our survey reports show nine and ten-hour work days which will increase fatigue and they also show that considerable of the work is done during night hours. The difference of opinion regarding the health of bakers, the

controversy regarding the dangers from flour dust, and the mortality statistics which show high percentage of death from respiratory diseases among bakers would indicate that further study should be made.

Gradual Improvement In Sanitation Evident

To summarize, I would say that there is a gradual improvement being noted in sanitation of food establishments. Most of the improvement has been brought about by State and municipal legislation, but it is gratifying to note that most employers and employees are complying with these regulations. I would suggest education of food handlers in matters of sanitation. In other words, assist the employer and employee to develop a sanitary conscience. I would also suggest the adoption of uniform laws regarding hygiene of food handlers and strict enforcement of existing laws and regu-

lations regarding abolishment of the common towel and the common drinking cup.

The Board of Governors of the American Bakers' Association, at the last annual convention, Sept. 11 to 16, 1922, reiterated its stand regarding sanitation, but modified the form of application for membership so as to make the sanitary code declaratory as the basis for an educational campaign among the membership of the association and throughout the baking industry, instead of mandatory and obligatory as conditions precedent to membership. Their stand in this matter is to be commended, and I would suggest that they be encouraged in this and that the states organize an educational campaign for the purpose of increasing the interest in matters of sanitation, not only among the industries involved but also among the general public.

Advocates Uniform Food Laws

Manufacturer Points Out to Food Control Officials the Contradictory State Regulations in Force

By Dr. T. J. BRYAN

Chief Chemist, Calumet Powder Company

DURING the last decade of the nineteenth century, food laws were enacted in many of the States of the Union. The adulteration of food and likewise the agitation for legislation against sophisticated, cheapened and misbranded foods reached their height during the first years of the present century. The Association of American Dairy, Food and Drug Officials, formed twenty-six years ago, had for one of its principal objects the enactment of laws that would amply protect the public against this adulteration and misbranding. Another primary object of the association was to bring about uniformity in these laws and in the enforcement of them.

Nevertheless up to the time of the enactment of the Federal Food and Drugs Act in 1906, food laws differed radically in all the different States in which they had been enacted. The members of this association deserve most honorable mention in the efforts which they put forth to secure the enactment of the Federal Food and Drugs Act, for this marked the first real step toward uniformity of laws between the states themselves. Many of the Southern and Eastern States soon enacted laws modeled after the Federal act and a few of the other states revised their laws along similar lines. The improvement along the lines of uniformity was very marked



Dr. T. J. Bryan

and the progress of events was welcomed by most reputable manufacturers in a belief that the Federal law would form a model for State legisla-

tion and regulation that would be generally recognized and followed. It was believed that differences in individual states because of the lack of uniformity would not long be experienced for that great bulk of package foodstuffs which are transported in interstate commerce.

The progress toward uniformity seemed, however, abruptly to come to an end. A large force of State and Federal inspectors and chemists delving into the conditions of the food world found sophistications and misrepresentations in unexpected fields and even the large number of officials enforcing these laws was not sufficient to make progress with the great rapidity desired by those who knew conditions as they were. To make enforcement easier, specific laws were enacted in many cases already covered by general terms of the laws upon the statute books. Reformers who were not well informed and manufacturers desiring special privileges caused bills to be introduced in legislatures the country over and it was poor politics for any legislator to vote against any bill which purported to do away with adulterated foods. Is it a wonder that with forty-eight States taking independent action a state of affairs should now exist in which a manufacturer is forbidden to label his goods in one state in the way in which he is required to label it in another? Such a condition

requires a manufacturer doing an interstate business to do what is practically impossible. His goods are distributed through established wholesale channels and he is generally without control over the ultimate destination of the goods. A jobber in Chicago distributes the goods of an Indiana manufacturer throughout Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, Kansas and the Dakotas. The breadth of his field is restricted only by his resources and because of transportation. The Indiana manufacturer prepares and labels his products truthfully so as to comply with both the letter and spirit of the pure food laws. Unfortunately by reason of the lack of uniformity in these laws and the lack of uniformity in State food regulations, his product which is legal both as to composition and labelling both under Indiana and Federal laws frequently becomes contraband when offered for sale in adjoining states which are within his distribution area. Such goods are then subject to confiscation and destruction just as much as if they were poisonous or contained prohibited habit-forming drugs.

Contradictory State Regulations

A few examples of this remarkable situation illustrate the difficulties imposed upon even the most honest manufacturer. Food products which are artificially colored with coal tar colors which have been certified as to purity by the Federal Government, may not be sold in Minnesota or North Dakota. A food product so colored is both legal and unquestionably wholesome in Illinois and Wisconsin and in fact in all other states. There is a peculiar phenomenon to be noted in this product, however, when it passes the geographical line which separates Wisconsin from Minnesota. This wholesome product immediately becomes deleterious to health and is declared contraband by Minnesota and North Dakota.

The wholesome and appetizing cochineal bug seems to be much preferred as a food coloring matter in the Northwest over synthetic coal tar colors of known and certified purity, and wholesomeness. Benzoate of soda is recognized as a wholesome and legal preservative in food products by the Federal Government and by all of the States except Wisconsin and North Dakota. In Wisconsin a food containing the slightest trace of benzoate of soda is deleterious to health but that same food, if in bulk form and prepared during certain seasons of the year is perfectly wholesome in North Dakota. If sold in package form, however, it again becomes unwholesome in the latter state.

The fruit growers of the Pacific Coast and the molasses manufacturers of Louisiana seek to improve the appearance of their products by treatment with sulphur dioxide. The Federal Government and practically all of

Is Food Law Uniformity Getting Anywhere?

ALTHOUGH it has been under discussion for years, the question of uniform food legislation has really made little progress, much of the opposition to any form of uniform Federal law coming from the State food control officials, who at their convention in St. Louis two years ago pledged themselves to work toward that end. The complications seem too difficult to overcome, according to many whose zeal for the protection of the people of their own States exceeds their desire to remedy the muddle of conflicting and contradictory laws in the various States.

Dr. T. J. Bryan, chief chemist of the Calumet Baking Powder Company, Chicago, who was invited to address the convention of the Association of American Dairy, Food and Drug Officials at Kansas City pointed to the anomalies existent in present food laws, and predicted that soon the question of uniform food legislation is certain to become a real issue "on which manufacturers and food commissioners alike must take a stand."—THE EDITOR.

the States recognize such treatment as perfectly legitimate and the food so treated is wholesome. These fruits and molasses, however, cannot be sold in Pennsylvania no matter how small an amount of sulphur remains in the product. If a manufacturer of Ohio is so unfortunate as to use molasses containing this ingredient in the manufacture of candy, his product is as much subject to confiscation and seizure in Pittsburgh as though it contained arsenic. Such remarkable changes from wholesome to unwholesome food products dependent upon geographical location might be multiplied.

Scope of Federal Act Not at First Known

As has been previously stated, following the enactment of the Federal Food and Drugs Act and the discovery of new forms of sophisticated foods, more and more laws at variance with each other were placed upon the statute books of the different states. The reason for these laws was not that these sophistications and adulterations could not be prevented under laws which already existed, but to make the enforcement of the general provisions easier and more speedy in the hands of the state food officials. In acquiring this ease and speed of enforcement, uniformity was necessarily sacrificed when so many different legislatures were acting along the same lines at the same time.

It is to be remembered that when this legislation was being enacted the Federal Food and Drugs Act had not been in force for any length of time and

the wide scope of the field it covered had not been determined by court decisions with the great fullness that has been accomplished at the present time. It is fitting that at this time we ask ourselves what added protection against harmful food or against sophisticated food the special law of any State gives today over and above what can be secured under the Federal act if the goods enter into interstate commerce, or under a State law patterned after the Federal act when goods are intrastate. The manufacturer asks of the food commissioner today that he lend his aid in securing laws uniform with the Federal law in all cases where special State legislation does not give a valuable additional and needed protection to the consumer.

The purpose of all food regulatory measures, whether laws or regulations, should be to require the manufacturer of foods to prepare a wholesome article and to honestly inform the public as to the character, type, strength and kind of food offered for sale. It would seem that such food so labeled, which is wholesome and honestly and completely labeled under the laws of Illinois should be equally wholesome and completely and honestly labeled in Michigan and that the purchasing public of Michigan would be as fully capable of understanding this label as the purchasing public of Illinois or any other State. The laws of the different States, however, seem to have been enacted on the assumption that such is not the case. North Dakota requires that labels on food products shall be of white paper and printed with black ink. The manufacturer who declares the contents of his package in the words "contains one quart" has not sufficiently appraised the purchaser of South Dakota of the fact that that package contains one quart of material as the South Dakota law requires that the net weight of contents be stated in the precise words "net weight one quart."

Label Legal in One State Is Illegal in Another

Some states require the label to show the name and address of the actual manufacturer and it is not enough to disclose the name of the jobber or distributor. Aside from the fact that this makes illegal a great many labels which are legal under the national law and the laws of the other States and subjects the seller to fine and imprisonment, many feel that it places an unnecessary restraint upon the distributor who ordinarily gains himself advertising by being known as the distributor of the product. It would ordinarily seem that a declaration upon a label which is printed in plain and readable type and conspicuous to the housewife of one State, would be equally plain and conspicuous to the housewife of other States. The legislatures of some States, in their supreme wisdom, have decided otherwise.

In some localities the declaration of certain ingredients must appear at particular places on a label and in other States such declarations must appear in definite sized type. Twenty-two States require eight-point type (brevier). Twenty States have no specific law, four States require heavy gothic type, and Massachusetts insists that the type and special declarations required under the law shall be one-quarter inch in size. The manufacturer who combines maple and cane sirup and offers it for sale in Ohio cannot employ the word "maple" on any part of his label. In other States, the same manufacturer is compelled by law to declare the presence of maple. In Wisconsin if maple sirup or any other sirup is mixed with corn sirup the names of the constituents of the sirup must not only be declared in gothic type, bold face, and not less than one-quarter inch in height, but such declarations must not be mingled with any other reading matter.

The leavening strength of baking powder has been standardized by the Joint Committee on Definitions and Standards so that 10 per cent available carbon dioxide is required in interstate commerce. Missouri and Indiana require only 8 per cent. Idaho, Illinois, Louisiana, Oklahoma, Vermont, Utah, Virginia and Wyoming require 10 per cent and North Dakota 14 per cent. Utah and Wisconsin require that sodium aluminum sulphate be declared on the labels as alum, despite the fact that sodium aluminum sulphate is not alum. Pennsylvania prohibits alum as an ingredient of food. The courts of that state have held very properly that sodium aluminum sulphate is not alum. Yet we find two States requiring baking powder manufacturers to tell the consumer that sodium aluminum sulphate is alum, i. e., potassium alum or the alum of the drug store when as a matter of fact it isn't that any more than ethyl alcohol is methyl alcohol. It is not an alum at all. A legal lie is forced upon manufacturers by these two States. In order to add additional complexities to an already complex situation the label forced upon the manufacturer by the two States just mentioned would advise the consumer in Pennsylvania that the product bearing that label contains something which is prohibited under the State law.

Possibly to encourage the use of flavoring extracts as substitutes for intoxicating liquors, some States require a declaration of the alcoholic content of flavoring extracts. Other States have no such provision.

It will readily be seen that without regard to wholesomeness of product or honesty of label, it is physically impossible for a manufacturer to provide a label which will be legal in every State of the Union. To follow out the above few examples of discord, the manufacturer of a product containing a coal tar color, fruit which had been treated with sulphur dioxide and corn

sirup, all preserved with benzoate of soda and packed in closed containers, legal under the National law, wholesome without dispute and so plainly labeled as to completely advise the consumer as to the nature of the product and the name of the distributor, would be illegal in state after state if not for the reason of coal tar color, then because the name of the manufacturer is not declared; or the names and percentage of ingredients not shown; or size of type not exactly correct; or that contents not in the exact verbiage required; or because of the presence of an unmeasurable amount of sulphur dioxide; or etc., etc., ad nauseum.

Situation Further Complicated by Special Rulings

This condition, ridiculous and extreme as it undoubtedly is, is further complicated by the fact that State food commissioners by virtue of statutory authorities specifically given or in some cases assumed without such legislative permission, promulgate rules and regulations apparently without thought of uniformity. The result is that the food manufacturer is not only faced with a multiplicity of statutory variations which require special treatment and special labels for special states; but he is expected to keep fully informed of administrative rulings which in some cases are not regularly published and even if published have restricted circulation.

Almost every time a State legislature meets, an effort is made to pass a measure regulating foods or drugs. Some of these measures are very proper regulations but more often than not they represent ideas inconsistent with the experience of good manufacturing practices and would seriously hamper, if not completely eliminate, some important phase of the food manufacturing industry. Even more generous and unnecessary restrictions have been attempted with the result that the food manufacturer has been compelled to spend thousands of dollars fighting for self-preservation instead of developing industry along constructive lines. Individual food enforcement officials among the States and even collective bodies of them, agree that uniformity should be established; but from the opposition which comes with every effort to secure uniformity it would appear that each enforcement officer has a pet subject and whether he be the only one who entertains it or not, he will not sacrifice it to the general good. There is apparently a disposition to openly approve uniformity on one hand and on the other to demand that all those having laws differing from his own shall rewrite their laws to be uniform with his.

Uniform Federal Law the Solution

Why not sift all these differences down; find out what is essential to the protection of the consumer; have the Federal law amended to secure this protection, and then have all State

laws and regulations follow the Federal ones verbatim? Is such a program practical?

One thing is sure, efforts toward uniformity in laws and regulations, have been practically without result during the last twelve years. Individual food officials are generally unwilling to change their State laws. It is no wonder that in the absence of anything more material than resolutions passed by this association, some manufacturers recently fathered a bill in congress, the Calder bill, which would materially limit the activities of State food officials and forever put to an end the dangers of promiscuous legislation by the States against interstate foods. Senator Ladd on the other hand, proposes a bill to limit the powers of the Federal Government over all interstate shipments, a bill which would make the States almost supreme in the food world and render uniformity an impossible dream.

The issue is accordingly now formally before Congress. Perhaps, nay probably, neither of these bills will be enacted into law; but in any case the matter is certain to become a real issue on which manufacturers and food commissioners alike must take a stand.

Will this association take a stand for uniformity in accordance with the provisions of its constitution and the many resolutions passed at its annual conventions, or will it reverse itself?

Will this association favor a Federal law that will make Federal law supreme on interstate foods from manufacturer to consumer if State officials are given a hand in enforcing the Federal laws and rulings? If not, will this association present some practical working method of getting such uniformity without such a Federal law? The food manufacturers and dealers await your authoritative reply to these questions.

Extract Manufacturers Get Treasury Decision Rescinded

In its effort to have Prohibition Mimeograph 282, governing users of non-beverage alcohol rescinded, the Flavoring Extract Manufacturers' Association of the United States, reports that it has been successful. This mimeograph of the Treasury Department which required the keeping of burdensome records was officially rescinded by Treasury Decision 3396 and in place of it there is provision that a record shall be kept of the amount of alcohol received; amount on hand at all times; the name of products in which the alcohol is used; and the number of gallons or amount of the product manufactured.

Gordon M. Day, president of the Flavoring Extract Manufacturers' Association, points out that about 42 State legislatures will be in regular session during the coming winter and in addition several bills affecting the manufacturers of flavoring extracts will be considered at Washington.

The Constitutional Rights of States as to Food Law Legislation

Discussion of Various Court Decisions Including That of the Wisconsin Supreme Court in "Filled Milk" Case

By J. Q. EMERY

Dairy and Food Commissioner of Wisconsin

LAW is a rule of conduct or action which is prescribed, or is formally recognized as binding, by the supreme governing authority.

It is but commonplace to state that the Legislature is the law making body of the state; and that the Legislature derives all its law making powers from the State constitution as adopted by the people of the State.

State food laws are enacted by the State Legislature under the police power of the state, within constitutional limitations. The police power is of such peculiar character as to be incapable of exact definition, although its general characteristics may be set forth.

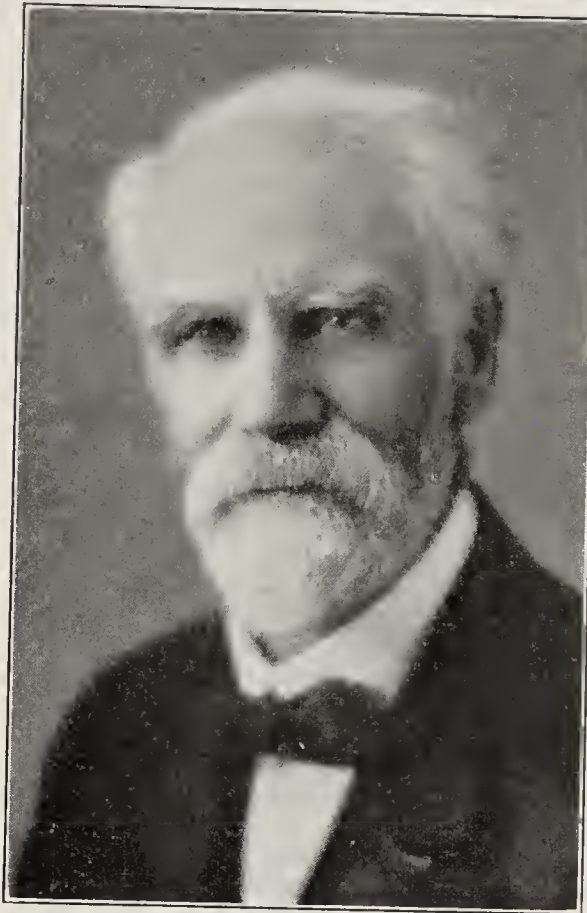
Defining the Police Power

In *Sligh vs. Kirkwood*, 23 U. S., the United States Supreme Court said:

"At an early date the police power was held to embrace every law or statute which concerns the whole or any part of the people, whether it related to their rights or duties, whether it respected them as men or citizens of the state, whether in their public or private relations, whether it related to the rights of persons or property of the public or any individual within the state. The police power, in its broadest sense, includes all legislation and almost every function of civil government. It is not subject to definite limitations, but is coextensive with the necessities of the case and the safeguards of public interest. It embraces regulations designed to promote public convenience or the general prosperity or welfare, as well as those specifically intended to promote the public safety or the public health. In one of the latest utterances of this court upon the subject, it was said: 'Whether it is a valid exercise of the police power is the question in the case, and that power we have defined, as far as it is capable of being defined by general words, a number of times. It is not susceptible of circumstantial precision. It extends, we have said, not only to regulations which promote the public health, morals, and safety, but to those which promote the public convenience or the general prosperity. . . And further, 'It is the most essential of powers, at times the most insistent, and always one of the least limitable of the powers of government.'"

In *Mugler vs. Kansas*, 123 U. S., the United States Supreme Court said:

"But by whom, or by what authority, is it to be determined whether the manu-



J. Q. Emery, Food Commissioner of Wisconsin

facture of particular articles of drink, either for general use or for the personal use of the maker will injuriously affect the public? Power to determine such questions, so as to bind all, must exist somewhere; else society will be at the mercy of the few, who, regarding only their own appetites or passions, may be willing to imperil the peace and security of the many, provided only they are permitted to do as they please. Under our system that power is lodged with the legislative branch of the government. It belongs to that department to exert what are known as the police powers of the State, and to determine primarily what measures are appropriate or needful for the protection of the public morals, the public health, or the public safety."

Scope of Police Power

The Supreme Court of Wisconsin by Mr. Justice Crownhart, in the recent Wisconsin so-called "filled milk" case with citations said:

"The police power covers all matters having a reasonable relation to the protection of the public health, safety or welfare.

"As applied to food this authority extends to requiring a fixed minimum amount of nutritional elements.

"The police power also has an especially appropriate field of action in the prevention of fraud and deception.

"It may be legitimately exercised against even the occasional fraud not inherent in the business or product, and a *fortiori* against the fraud that is inherent in it.

"It extends farther, and embraces the right to prohibit all things which constitute obstacles to a greater public welfare and to do whatever will promote the general convenience or the general prosperity including even such matters as the preservation of the reputation of a great industry of the state against injury in markets outside of the state."

In connection with the exercise of the police power by the State Legislature, I wish to consider the constitutional limitation of courts as to declaring invalid laws that have been duly enacted by the State Legislature.

In *Powell vs. Pennsylvania*, 127 U. S., the United States Supreme Court said:

"Whether the manufacture of oleomargarine, or imitation butter, of the kind described in the statute, is, or may be, conducted in such a way or with such skill and secrecy as to baffle ordinary inspections, or whether it involves such danger to the public health as to require for the protection of the people, the entire suppression of the business, rather than its regulation in such manner as to permit the manufacture and sale of articles of that class that do not contain noxious ingredients, are questions of fact and of public policy which belong to the legislative department to determine. And as it does not appear upon the face of the statute, or from any facts of which the court must take judicial cognizance, that it infringes rights secured by the fundamental law, the legislative determination of those questions is conclusive upon the courts. * * *

"If all that can be said of this legislation is that it is unwise, or unnecessarily oppressive to those manufacturing or selling wholesome oleomargarine, as an article of food, their appeal must be to the Legislature, or to the ballot-box, not to the judiciary. The latter cannot interfere without usurping powers committed to another department of government."

An Oleomargarine Decision

In the case *Hammond Packing Company vs. Montana*, 233 U. S., the

Address at twenty-sixth annual meeting of the Association of American Dairy, Food and Drug Officials, Kansas City, Mo., Oct. 5.

United States Supreme Court said:

"Apart from interference with commerce among the States, a State may restrict the manufacture of oleomargarine in a way in which it does not hamper that of butter. It even may forbid the manufacture altogether. It may express and carry out its policy as well in a revenue as in a police law."

In *Booth vs. Illinois*, 184 U. S., the United States Supreme court said:

"Is it true that the Legislature is without power to forbid or suppress a particular kind of business where such business properly and honestly conducted, may not, in itself be immoral? We think not. A calling may not in itself be immoral and yet the tendency of what is generally or ordinarily or often done in pursuing that calling may be towards that which is admittedly immoral or pernicious. If, looking at all the circumstances that attend, or which may ordinarily attend, the pursuit of a particular calling the State thinks that certain admitted evils cannot be successfully reached unless that calling be actually prohibited, the courts cannot interfere, unless, looking through mere forms and at the substance of the matter, they can say that the statute enacted professedly to protect the public morals has no real or substantial relation to that object, but is a clear, unmistakable infringement of rights secured by the fundamental law."

Considerable Latitude Allowed

In the case *Otis vs. Parker*, 187 U. S., the United States Supreme Court said:

"While the courts must exercise a judgment of their own, it by no means is true that every law is void which may seem to the judges who pass upon it excessive, unsuited to its ostensible end, or based upon conceptions of morality with which they disagree. Considerable latitude must be allowed for differences of view as well as for possible peculiar conditions which this court can know but imperfectly, if at all. Otherwise a constitution, instead of embodying only relatively fundamental rules of right, as generally understood by all English-speaking communities, would become the partisan of a particular set of ethical or economical opinions, which by no means are held *semper Ubique et ab omnibus*."

"If the State thinks that an admitted evil cannot be prevented except by prohibiting a calling or transaction not in itself necessarily objectionable, the courts cannot interfere, unless, in looking at the substance of the matter, they can see that it is a clear, unmistakable infringement of rights secured by the fundamental law."

In *Silz vs. Hesterberg*, 211 U. S., the United States Supreme Court said:

"The Legislature of the State is authorized to pass measures for the protection of the people of the State in the exercise of the police power, and is itself the judge of the necessity or expediency of the means adopted."

In *McLean vs. State of Arkansas*, 211 U. S., the United States Supreme Court said:

"The Legislature being familiar with local conditions is, primarily, the judge of the necessity of such enactments. The mere fact that a court may differ with the legislature in its views of public policy, or that judges may hold views inconsistent with the propriety of the leg-

islation in question, affords no ground for judicial interference, unless the act in question is unmistakably and palpably in excess of legislative power.

"If the law in controversy has a reasonable relation to the protection of the public health, safety or welfare, it is not to be set aside because the judiciary may be of opinion that the act will fail of its purpose, or because it is thought to be an unwise exertion of the authority vested in the legislative branch of the Government."

Judicial Opinion Must Not Displace Will of Legislature

In *Purity Extract and Tonic Company vs. Lynch*, 226 U. S., the United States Supreme Court said:

"It is well established that, when a State exerting its recognized authority undertakes to suppress what it is free to regard as a public evil, it may adopt such measures having reasonable relation to that end as it may deem necessary in order to make its action effective. It does not follow that because a transaction separately considered is innocuous it may not be included in a prohibition the scope of which is regarded as essential in the legislative judgment to accomplish a purpose within the admitted power of the Government. With the wisdom of the exercise of that judgment the court has no concern; and unless it clearly appears that the enactment has no substantial relation to a proper purpose, it cannot be said that the limits of legislative power have been transcended. To hold otherwise would be to substitute judicial opinion of expediency for the will of the Legislature, a notion foreign to our constitutional system."

In *Rast vs. Van Deman and Lewis*, 240 U. S., the United States Supreme Court said:

"It is the duty and function of the Legislature to discern and correct evils, and by evils we do not mean some definite injury but obstacles to a greater public welfare * * * It is not required that we should be sure as to the precise reasons for such judgment or that we should certainly know them or be convinced of the wisdom of the legislation."

In *Hutchinson Ice Cream Company vs. Iowa*, 242 U. S., the United States Supreme Court said:

"Laws designed to prevent persons from being misled in respect to the weight, measurement, quality or ingredients of an article of general consumption are a common exercise of the police power. The legislature defines the standard article or fixes some of its characteristics; and it may conclude that fraud or mistake can be effectively prevented only by prohibiting the sale of the article under the usual trade name, if it fails to meet the requirements of the standard set. Laws prohibiting the sale of milk or cream containing less than fixed percentages of butter-fat present a familiar instance of such legislation."

Prevention of Deception

In *Hall vs. Geiger-Jones Company*, 242 U. S., the United States Supreme Court said:

"We shall not pause to do more than state that the prevention of deception is within the competency of government and that the appreciation of the consequences of it is not open for our review. * * * Against counterfeits of value the law can give protection."

In the case of *Merrick vs. Halsey and Company*, 242 U. S., the United States Supreme Court said:

"It may be that there are better ways to meet the evils at which the statute is directed and counsel have felt it incumbent upon them to suggest a better way. We can only reply that it is not our function to decide between measures and upon a comparison of their utility and adequacy determine their legality."

In *Hebe Company vs. Shaw*, 248 U. S., the United States Supreme Court said:

"It is true that so far as the question of fraud is concerned the label on the plaintiffs' cans tells the truth—but the consumer in many cases never sees it. Moreover, when the label tells the public to use Hebe for purposes to which condensed milk is applied and states of what Hebe is made, it more than half recognizes the plain fact that Hebe is nothing but condensed milk of a cheaper sort. * * * The purposes to secure a certain minimum of nutritive elements and to prevent fraud may be carried out in this way even though condensed skimmed milk and Hebe both should be admitted to be wholesome. The power of the Legislature is not to be denied simply because some innocent articles or transactions may be found within the prescribed class. The inquiry must be whether, considering the end in view, the statute passes the bounds of reason and assumes the character of a merely arbitrary fiat. If the character or effect of the article as intended to be used 'be debatable,' the Legislature is entitled to its own judgment, and that judgment is not to be superseded by the verdict of a jury, or, we may add, by the personal opinion of judges, 'upon the issue which the Legislature has decided.' The answer to the inquiry is that the provisions are of a kind familiar to legislation and often sustained, and that it is impossible for this court to say that they might not be believed to be necessary in order to accomplish the desired ends."

Reasons for Law Up to Legislature

The Wisconsin Supreme Court in the case *State of Wisconsin vs. Currans*, 111 Wisconsin, by Mr. Justice Dodge said:

"The reasons for a given statute are for the Legislature if there are any which can fairly have weight. They are not for the courts. The latter have no control over the validity of a law unless they can say with substantial certainty that no argument or consideration of public policy exists which could have weight with any reasonable and honest man. If any such argument or reason can be suggested, its weight or sufficiency is not debatable in the courts. The existence of legitimate and adequate reasons for any law should not lightly be denied. Human minds differ, and what may seem inadequate or irrelevant to one may seem cogent to another. One is not justified, therefore, in assuming that all who differ from him are unreasonable or are not acting in good faith. It is from such considerations as these that the courts have laid down for themselves the rule that only in a clear case—clear beyond reasonable doubt—will they venture to assert that a law is without reason to support either its purpose or the classifications it may make."

In the case *State vs. Cary*, 126 Wis-

consin, the Supreme Court of Wisconsin states:

"The exercise of this legislative power being approved and sanctioned, it necessarily follows that the Legislature is vested with the power to legislate against the injurious consequences that inhere in the conduct of such business, and possesses discretion to determine what means are necessary to the accomplishment of this end, and its action is valid, unless it has exceeded its authority by imposing such arbitrary restrictions upon the individual and his business or occupation as are palpably foreign to the legitimate purposes sought to be accomplished by the legislation."

Court Cannot Try Legislature

In the recent filled milk case the Wisconsin Supreme Court by Mr. Justice Crownhart giving citations, stated:

"If there is any reasonable basis upon which the legislation may constitutionally rest, the court must assume that the Legislature had such fact in mind and passed the act pursuant thereto. The court cannot try the Legislature and reverse its decision as to the facts. All facts necessary to sustain the act must be taken as conclusively found by the Legislature, if any such facts may be reasonably conceived in the mind of the court."

It goes without saying that in the exercise of all these constitutional legislative powers, the State Legislature in the field of its own jurisdiction is supreme. Also the Congress in its own field of jurisdiction is supreme. This proposition has been fully sustained by the Supreme Court of the United States in numerous decisions, especially in *Savage vs. Jones*, 225 U. S., *McDermott vs. State of Wisconsin*, and *Weigle vs. Curtice Brothers Company*.

In the case of *Savage vs. Jones*, the question of the right of the Legislature of Indiana to require specified labeling on certain stock foods shipped into Indiana in interstate commerce was the issue. I present this matter because the frivolous claim has been set up in certain quarters that the State has no authority to enact laws requiring any other labeling than that used in interstate commerce on food products, which food products have been shipped into that state in interstate commerce. In *Savage vs. Jones*, the right of the state to enact reasonable law in this respect was most clearly and emphatically maintained by the United States Supreme Court and was in effect as follows as set forth in the syllabus:

"Where an act of Congress relating to a subject on which the state may act also, limits its prohibitions, it leaves the subject open to state regulation as to the prohibitions which are unenumerated."

"The statute of Indiana regulating the sale, and requiring formula of ingredients of concentrated commercial stock food is a proper and reasonable exercise of legislative police authority for the protection of the people of the state. The act is not unconstitutional as depriving a vendor of such food who lives in another state and ships it therefrom to

Indiana, either as a regulation of, or burden upon, interstate commerce, as depriving any vendor thereof of his property without due process of law, or as a revenue measure beyond the power of the state, nor does the requirement for publishing the ingredients conflict in any manner with the food and drug act of 1906."

Congress and the Legislatures

In that decision the United States Supreme Court stated:

"The intent to supersede the exercise by the state of its police power as to matters not covered by the Federal Legislature is not to be inferred from a mere fact that Congress has seen fit to circumscribe its regulation and to occupy a limited field. In other words, such intent is not to be implied unless the act of Congress, fairly interpreted, is in actual conflict with the law of the state."

In the case *George McDermott vs. State of Wisconsin*, referring to the National Food and Drugs Act the United States Supreme Court said:

"The object of the statute is to prevent the misuse of the facilities of interstate commerce in conveying to and placing before the consumer misbranded and adulterated articles or medicine or food, and in order that its protection may be afforded to those who are intended to receive its benefits the brands regulated must be upon the packages intended to reach the purchaser. * * * While these regulations are within the power of Congress, it by no means follows that the State is not permitted to make regulations with a view to the protection of its people against fraud or imposition by impure food or drugs. This subject was fully considered by this court in *Savage vs. Jones*, 225 U. S. 501, in which the power of the State to make regulations concerning the same subject-matter, reasonable in their terms and not in conflict with the acts of Congress, was recognized and stated, and certain regulations of the State of Indiana were held not to be inconsistent with the Food and Drugs Act of Congress."

Wisconsin Maintains States' Rights

The constitutional rights of the State in State food law legislation, Wisconsin has insistently maintained. Maintaining that in food law legislation, effective protection of the consuming public against the harmful consequences of adulteration and fraud is the paramount issue, Wisconsin has persistently refused to surrender her constitutional birthright and follow that ignis fatuus, that will-o'-the-wisp, uniformity. Among the more conspicuous Wisconsin food laws prohibiting the sale of certain articles of food which are not prescribed by the National food law, is the law before mentioned forbidding the sale of articles of food containing benzoate of soda; the sale of articles of food containing saccharin; the sale of any canned fruits, vegetables, meats, fish or shell fish containing any artificial coloring or any bleaching compound or any chemical preservative; any foods that are artificially colored and flavored in imitation of the genuine color and flavor of another article; the sale of flour that has been artificially bleached; the sale of oleomargarine

which shall be in imitation of yellow butter; the manufacture and sale of cheese containing more than 38 per cent moisture; a similar law relating to the sale of butter containing less than 80 per cent of butter fat; the sale of filled cheese; and the recent law enacted by the Wisconsin Legislature after a terrific legislative battle which forbids the sale of so-called filled milk and which law has been sustained by the Wisconsin Supreme Court and admittedly no appeal from this decision is to be taken to the higher courts.

Decision in "Filled Milk" Case

Certain facts in relation to this latter case as set forth by the Wisconsin Supreme Court on the evidence submitted are pertinent in this discussion. The law in question prohibits the manufacture and sale among other things of condensed skim milk to which has been added any fat or oil other than milk fat either under the name of said products or articles or derivatives thereof or under any fictitious or trade name whatsoever. The court found:

"The plaintiffs manufacture and have in their possession for sale Hebe, which is a compound composed chiefly of milk from which the butter fat has been extracted and cocoanut oil injected in place of the butter fat."

"The compound contains 92.2 per cent skim milk or buttermilk and 7.8 per cent of cocoanut oil similarly evaporated as condensed milk. It is similar in taste, odor, appearance, consistency and manner of packing to evaporated milk. The butter fat extracted from the milk is much more expensive than the cocoanut oil injected into the milk to take the place of the butter fat. Hebe can therefore be sold and is sold to the wholesalers and retailers cheaper than the genuine evaporated condensed milk. The compound is not deleterious in itself but is not of the same quality of food value as the genuine evaporated milk. It is lacking in a certain chemical substance known as vitamin A, which is an essential element of a proper dietary. This vitamin may be supplied by other foods. It is admitted that the compound is not a proper substitute for the genuine. Hebe has been extensively advertised as a substitute for milk through the press and magazines and by means of cook books prepared by the Hebe Company. It has been advertised by the newspapers of Wisconsin as 'milk,' 'milk compound' and 'compound of milk.' It has been sold by the retailers of Wisconsin as milk or evaporated milk. There have also been advertised and sold four other similar compounds in the State of Wisconsin, either as 'milk' or 'compound of milk.' These compounds are also shipped out of the state and advertised and sold in other states as substitutes for evaporated milk."

"In some cases the compounds are sold by the retailers at the same price as the genuine evaporated milk. Compounds have been labeled at different times to indicate that they are more or less equivalent to or better than the genuine evaporated milk. At the time of the commencement of this action Hebe was labeled, 'a compound of evaporated skim milk and vegetable fat. Contains 7.8

per cent vegetable fat, 25.5 per cent total solids.' On the margin of the label was printed 'For cooking and baking. Do not use in place of milk for infants!'"

The following is also taken from the decision of the Wisconsin Supreme Court in that case:

"The advertisements of cocoanut oil compounds have been skillfully prepared to give the impression that the compounds are equal if not better than the genuine dairy product. For instance, a full page advertisement in the Chicago Tribune contains a typical gem of the advertisers' art. 'Nutro is a delicious and nutritious new milk product. It is prepared in the rich dairying districts of Wisconsin and Indiana and made of pure fresh cow's milk with the animal fats extracted and essential food value replaced by a refined sweet rich pure vegetable cocoanut fat.'

"Nutro is pure, delicious, wholesome. It is prepared in modern condensaries from pure cow's milk evaporated to double strength with the animal fats extracted and then enriched with sweet, edible, highly refined vegetable fat."

Comment is unnecessary says the court other than to say that other advertisements are equally well calculated to convey the idea to the public that pure, fresh cow's milk from Wisconsin has been enriched and improved by the injection of sweet, edible, highly refined cocoanut fat.

Theory of Court's Decision

The theory upon which the law of Wisconsin prohibiting the manufacture and sale of so-called "filled milk," in keeping with the constitutional rights of states as hereinbefore set forth, which was enacted by the Wisconsin Legislature of 1921 and the validity of which law has been sustained by the Wisconsin Supreme

Court was very clearly and tersely set forth by Deputy Attorney General Hoyt, that the product was of an inherently fraudulent nature being an imitation of a long established and well known food product; that it was actually although not admittedly sold upon the market for the product of which it is a perfect physical imitation; that it was sold at retail, advertised by retailers not once but many times in a fraudulent manner consistent with its own deceptive nature; that it was not only an imitation and a substitute but an inferior imitation, not of an ordinary and comparatively unimportant food, but of the most important and the most perfect article of food that has been supplied by nature for the use of mankind; and that the inferiority of the imitation lies in a deficiency of nutritive value which brings the question of prohibiting or permitting its manufacture and sale into a vital relationship with the question of public health.

It is well established by the judicial decisions which I have quoted that legislation to correct such conditions, even to the extent of prohibiting the manufacture and sale of such an article within the state, is within the constitutional rights of the state.

Disinction Between Domestic and Interstate Commerce

In the case *Weigle vs. Curtice Brothers Company*, 248 United States, in which the defendant disavowed any contention that the state laws affected or purported to affect sales by the importer in the unbroken wooden packages containing the bottles the decree treated that subject as taken out of

the case. "But the bill went further and setting up a decision incorporated in a regulation under the act if each container should be plainly labeled, contended that under the Food and Drugs Act and the commerce clause of the constitution, the Wisconsin law was invalid even as applied to domestic retail trade in single bottles or the contents of single bottles of the plaintiffs' goods." The United States Supreme Court disposed of this contention in the following vigorous language which fully and conclusively sustains all the contentions I have made in this paper as to the constitutional rights of the states in food law legislation:

"The Food and Drugs Act indicates its intent to respect the recognized line of distinction between domestic and interstate commerce too clearly to need argument or an examination of its language. It naturally would, as the distinction is constitutional. The fact that a food or drug might be condemned by Congress if it passed from state to state, does not carry an immunity of foods or drugs, making the same passage, that it does not condemn. Neither the silence of Congress nor the decisions of officers of the United States have any authority beyond the domain established by the Constitution. When objects of commerce get within the sphere of State legislation the State may exercise its independent judgment and prohibit what Congress did not see fit to forbid. When they get within that sphere is determined, as we have said, by the old long-established criteria. The Food and Drugs Act does not interfere with State regulation of selling at retail. Such regulation is not an attempt to supplement the action of Congress in interstate commerce but the exercise of an authority outside of that commerce that always has remained in the States."

Conflicting Laws Affecting Margarin

Some States Have Regulations So Confusing That to Comply With One is to Violate Another

By J. S. ABBOTT

Secretary, Institute of Margarin Manufacturers

PRODUCERS, those who sow and reap, manufacture and sell, expect food control officials to possess those qualifications that have been set down by all great thinkers as indispensable in all good public officers and to enforce the laws which they are commissioned to enforce in harmony with such qualifications.

The qualifications which William Penn said public officials should have are "ability, honesty, dispatch, patience and impartiality." His opinion is perhaps a good "composite" of the opinions of all great thinkers. "A ruler who appoints any man to an office,

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when there is in his dominions another man better qualified for it, sins against God and against the State," is a maxim of the Koran.

Pres. Wilson once remarked rather humorously but philosophically that all any man can do in the appointment of public officials is to appoint the best men he can find and then watch and see whether they grow or just swell up. Officials selected with these considerations in mind will enforce the laws in harmony with the sound American doctrine of a "square deal" which was emphasized by that distinguished American citizen, Theodore Roosevelt, who put that doctrine in the following language:

"In a Republic such as ours the only

safety is to stand neither for nor against any man because he is rich or because he is poor, because he is engaged in one occupation or another, because he works with his brains or because he works with his hands. We must treat each man on his worth and merit as a man. We must see that each is given a square deal, because he is entitled to no more and should receive no less.

"We need to keep in mind that he is the worst enemy of this country who would strive to separate its people along the lines of section against section, of creed against creed, or of class against class."

Food Control Officials Must Grow
On the matter of ability, food con-

trol officials entering upon their official duties are expected to grow rather than to just swell up. According to William Penn, "he that understands not his employment, whatever else he knows, must be unfit for it, and the public suffers by his inexpertness." A food official once remarked in my hearing that he felt very incompetent in the performance of his duties. He had not had time to get more than a very superficial knowledge of the thousand and one different kinds of industries which he was commissioned to supervise. He was, he said, like a Georgia fish pond, covering the whole world and not knee deep anywhere. It is a big job for anyone to learn what it is necessary for a food official to know about these numerous industries. The more he knows about them and about the men who are running them, the saner he will be in his evaluation of business men and the less bureaucratic he will be in his administration of the laws.

The growth of officials will be healthy and vigorous in proportion to the degree of co-operation between them and the trade as well as between each other. The trade expects officials to meet it halfway. When such co-operation gets under good headway it will soon be learned that officials are not the only citizens rendering a public service. The trade is rendering just about as valuable a public service as that which public officials in any capacity are rendering. Those who sow and reap, manufacture and sell, are just about as important units in a body politic as those who are employed by the State, especially so in this age of a very great division of labor.

Food Officials Today Take Broader View of Duty

It is not enough that food control officials know the composition of foodstuffs and the manufacturing processes used in their preparation for market and for consumption. It is not enough that they know the nomenclature, technical and current, used in their identification. It is not enough that they know the particular laws that they have to enforce. These requirements of them are matters of course. There was a time, however, when a food official felt that he had performed his whole duty whenever he had driven a carload of adulterated foodstuffs out of his own state or district regardless of how many American citizens in other jurisdictions were injured or defrauded in it. There was a time when an official who had discovered that a particular dairy was the source of a diphtheria epidemic would stop the sale of the milk in his own jurisdiction and consider it none of his business where such milk went or whose lives it endangered outside of his own bailiwick. But a broader conception of his responsibility now obtains and a sane official knows that if he helps his neighbor official to protect his neighbor's tribe he may in turn receive

A Practical Suggestion for Remediating Tangle of Food Regulations

J. S. ABBOTT, secretary of the Institute of Margarin Manufacturers, himself once a food control official, made a practical suggestion to the Association of American Dairy, Food and Drug Officials as to arriving at some permanent solution of the present conflicting tangle of food laws and regulations.

He suggests that every important group of food producers present a brief on the "conflicting and useless phases of law and regulations that work an actual, not a theoretical hardship, on industry without any consequent protection whatever to the consumer or to the Government." Then, says Mr. Abbott, the food control officials should appoint a committee to study such conflicting laws and recommend a remedy.

—THE EDITOR.

help from his neighbor in the protection of his own tribe.

A knowledge of the laws and of the difficulties and requirements of marketing foodstuffs throughout the length and breadth of our entire country is highly important to those who want to administer laws with the greatest good to the greatest number and with justice as well as with vigor. The importance of such a knowledge of laws and regulations could be illustrated by almost any man in any industry in this country. You will of course excuse me for confining my illustrations to the oleomargarine industry, for the good reason that it is the only one in which I have had any practical and actual experience.

There are many State and Federal laws relating to the manufacture and sale of oleomargarine. They would make a volume. And the regulations for their enforcement would make an encyclopedia. There is the Federal oleomargarine law, administered by the Bureau of Internal Revenue of the United States Treasury Department. There are several revenue laws relating to the levying and the collecting of taxes, affecting it and administered by the same bureau. There is the Federal Meat Inspection Act, administered by the Bureau of Animal Industry of the United States Department of Agriculture. There is the Federal Food and Drugs Act, administered by the Bureau of Chemistry of the same department. There are the oleomargarine laws and the general food laws of each of the several States of the United States (with only a few exceptions), administered by food, dairy and drug officials.

Some of these oleomargarine laws are actually administered by officials who are by law commissioned and directed to promote the development of

industries in competition with the oleomargarine industry. More than 95 per cent of the oleomargarine manufactured is now packed in cartons. The labels of every one of these cartons have been approved by the Bureau of Internal Revenue. Every one that is used for packing oleomargarine containing any animal fat has been approved by the Bureau of Animal Industry and bears the legend, "U. S. Inspected and Passed by the Department of Agriculture," which means that every ingredient of the product as well as the buildings in which the product is made comes up to the requirements of the Federal Government.

Oleomargarine Rigidly Controlled

If a margarin manufacturer does not do what either one of these government bureaus tells him to do, the bureau can close up his factory without a trial by a judge or a jury. The Bureau of Internal Revenue requires of wholesale dealers in and manufacturers of oleomargarine a report of what amounts to a copy of the invoice of each and every shipment of oleomargarine manufactured or sold by them, that is, the name and address of the consignee and the quantity shipped. The Federal Government in other words controls the manufacturing and labeling of oleomargarine and follows it right down to the small retailer who is also under license and consequent rigid control. The Federal Government even requires manufacturers to report monthly the kinds and the quantities of the several ingredients used in making the product.

The Bureau of Internal Revenue has a regulation to the effect that no sign or device or word can be put on a shipping case of oleomargarine unless the word oleomargarine appears underneath it. We are not permitted to put the word oleomargarine above it, or to the left of it, or to the right of it. If we put the word oleomargarine underneath it, we are, under certain circumstances, required by the Bureau of Animal Industry to print other matter with it. By the time we comply with all of the regulations concerning it, it would be just about as visible as a black cat in a midnight storm. Again, not a single pound of oleomargarine can be removed from a shipping case except and until it is sold and ready to be delivered to the purchaser. The dealer will not put the whole case into a small refrigerator to protect the goods. He is not allowed to take out the unit carton packages as he does butter packages and put them into the ice box. So he either will not handle oleomargarine or he lets it stay out on the counter with the crackers. The margarin industry is on record in favor of a retail package, and no other, sealed with a revenue stamp so that this difficulty of marketing can be obviated. But we have been unable to get a committee of Congress to give us even a hearing for such relief.

For many years the Federal Government required retail dealers in oleo-

margarine to put the word oleomargarine, the net weight, and the name and address of the retail dealer on the paper bag or on the sheet of wrapping paper used by the dealer for wrapping oleomargarine for the customer. This was so even in cases of prints of margarin in cartons, which cartons the Bureau of Internal Revenue now requires and always has required to bear a statement of the net weight and the word oleomargarine. Such a duplication of statements was clearly an unnecessary and troublesome expense. It cost the margarin industry \$50,000 or \$60,000 per annum, and did not help anybody but the rubber stamp manufacturers. Three States still have the requirement, but it has been abolished by the Federal Government.

Contradictory State Margarin Laws

The State of Iowa says we must label oleomargarine with the words, "A substitute for butter." Minnesota, next door has made such a label unlawful in its confines. You can imagine how difficult or annoying it is to a wholesale dealer in oleomargarine in Keokuk to comply with the laws of both States. If by chance a careless shipping clerk ships the wrong package into one of these States, a dealer is prosecuted and convicted and branded as a bad citizen and every dairy journal in the land features the case as an indication of what a bad set we are.

The oleomargarine industry is even prohibited by the laws of some states from telling what oleomargarine is. Notwithstanding the fact that there is not a pound of oleomargarine advertised in this country but what milk, or skimmed milk, or butter or two of these foodstuffs, as well as wholesome edible fats and oils are used in its manufacture, some states make it unlawful to advertise this fact. We have actually been prosecuted for using the word "churned" in advertising our product, notwithstanding the fact that we put ripened milk and fats and oils in a sure enough cow churn and turn the churn until the mixture is what is called oleomargarine. The laws do not provide that we shall not use such terms in a way that is false or misleading. That would be a perfectly proper provision. They provide that we shall not use them in any manner. One of the states that has such a law has another law requiring us to name the ingredients on the label of oleomargarine. If we comply with one of these laws we violate the other and are advertised as crooks.

If everything were put on a package of oleomargarine that is required by the various States and by the Federal Government, you could not tell it from a Chinese rebus. It is impossible for any margarin manufacturer doing business in every State in the Union to use a standard container.

Food Officials Wield Powerful Influence

But what is the answer and what have food control officials to do with these conditions? On the theory as

set forth in the first part of this paper that officials are able, honest, and impartial, that they do not represent any class or creed or sect, that they give every man a square deal, that they do not oppress a legalized industry helping to market agricultural products in a palatable and wholesome form, they should have and do have much to do with such laws and regulations, not only as they affect the oleomargarine industry but as they affect every other food industry in this country. In many places food officials have actually and properly drafted some good and wholesome bills that have been enacted into law on their recommendations. Their counsel is always desired and earnestly sought by lawmakers, State and Federal, in all matters relating to food control. They and those who have gone before them are responsible for many of these laws and regulations. And they will continue to wield, and very properly so, a powerful influence in this particular field.

Co-operation Necessary Between Officials and Trade

The important question to the trade is, "How can these laws and the regulations for their enforcement be made effective and uniform, or at least unconflicting?" In my humble opinion there is but one answer. I have given it and repeated it so often, as an official and as a member of the "Third House," that I hesitate to do so again. It is "cooperation between food control officials and the trade." And I know of but one way for these two groups to begin functioning with the hope of reaching such a goal. You can invite the trade associations of all or of the important food industries of this country to prepare briefs for you on the "Difficulties of Complying with the Food Laws of This Country." Ask them to write such briefs in plain language, pointing out comprehensively, as I have tried to do very briefly for illustration, the conflicting and useless phases of law and regulations that work an actual, not a theoretical hardship, on industry without any consequent protection whatever to the consumer or to the Government. Then appoint appropriate committees of your fellow officials to study such briefs and report back to you their findings with their recommendations. The industries can publish such reports if you cannot and make them a part of the literature on this great problem of food control. Information of this nature would appear to be most valuable to you and to your successors in office when your counsel is sought by lawmakers and when you are making up your own administrative regulations.

Such a procedure would undoubtedly bring about such uniformity with a consequent increased efficiency in the regulation of those industries engaged in marketing foodstuffs that are consumed in the United States.

While it may be considered out of place to do so in this sort of paper, I

want to make one specific recommendation of a policy which I think food control officials should adopt more generally. I refer to the policy of approving labels of foodstuffs. There are the usual pros and cons on this subject. But it would appear to me from my "Third House" experience that the pros are more weighty than the cons. It does not help trade and it does not increase the public confidence in official efficiency for an official to write as follows back to an honest man in trade who has earnestly sought information as to the legality of a certain label in a certain State:

"Your recent letter asking if your label meets the requirements of the law of this State has been received. In reply to the same, I beg to enclose herewith a copy of the law." If the law sent back were the only law and if it were so stated, it would not be so bad. But it frequently happens that it is not the only law governing the product in question. And some bulletins of laws are so printed that one cannot tell a section of the law from a section of the regulations for its administration.

I cannot close this paper with a more just or philosophic paragraph than that of Dr. C. L. Alsberg, sometime Chief of the Bureau of Chemistry, United States Department of Agriculture, as follows:

"The most important thing the food producer expects from the food control official is a fair deal, that is to say that all should be treated alike. This means more than merely that the food control official must be honest. It means that he must be vigilant so as not to be made a catspaw by one side of a trade controversy. He should, therefore, never make a decision favored by one group of the trade until after he has had an opportunity of getting the judgment on the proposed decision from all the other interested groups. It follows, therefore, that he should make no sudden decisions. It is important for him to give everyone an opportunity to be heard. Once he has decided what the proper decision is under any given set of circumstances, he should make the decision known in such a way that all branches of the industry receive it simultaneously and that no one through premature knowledge has an advantage. At the same time he should arrange that decisions go into effect after due warning and in a manner which will cause no economic waste. This matter of economic waste he should always have in mind. Economic waste is always expensive to the consumer. In making a decision that changes an old established practice, he should consider not merely the absolute abstract justice of the proposed change but also its economic effect. Sometimes the economic effect of a decision may be so expensive for the consumer that it is an open question whether or not it would not be to the public interest to forego a given more or less technical reform."

Suggests Legal Curb on Food Advertising

Cleveland Health Official Declares Statements Are Published Which Present Laws Do Not Reach

By HAROLD J. KNAPP, M.D.

Chief Diagnostician of Municipal Laboratories, Cleveland

THE aim of any intelligent food and drug administration should be to secure safe commodities for public consumption at reasonable cost. It is well established fact that these commodities under certain conditions may be potentially causative factors of disease. In order, therefore, that such an agency may fulfill its function, it is necessary that intelligent and frequent inspection of all establishments handling such products be made.

The problem, therefore, of efficient administration is primarily one of inspection. Inspections must be frequent and emphasis must be laid upon volume distribution and relative importance of the respective food or drug to the human being. If this premise is tenable, it is patent that in any health administration where the budget is not limitless, efforts must be concentrated on places of production in the order of relative importance.

The greatest defects in food and drug administration as carried on at the present time, lie in intrastate inadequacy, this inadequacy is especially noticeable in the municipality. Some explanations of this apparent inefficiency in food and drug administration should be forthcoming and may be tabulated as follows:

1. This problem is not generally regarded as a health measure and frequently technical violations are corrected without any appreciation of the true health aspect of the case.
2. Many States and cities provide an altogether inadequate budget for the proper administration of such a problem.
3. Great emphasis has been placed in the past, upon chemical findings when the sanitary and bacteriological findings have been entirely overlooked.
4. States and municipalities exercise little or no control over the advertising of merchandise of this sort, except such advertising as may be present upon carton or label.
5. License laws with power of revocation over food and drug handlers are in force, in but few localities.
6. In most communities technical and inspectional work have not been closely correlated, resulting in disjointed and inefficient enforcement.

Possible Remedies Suggested

Since defects in present enforcement systems have been pointed out, it should be the aim of this paper to discuss the subject constructively and to point out possible remedies.

In consideration of the first defect, especial emphasis should be made upon importance of the subordination of



Dr. Harold J. Knapp

every municipal food and drug administration to the local health department. Health departments should recognize the importance of this end of the work and see that sufficient appropriation is delegated for the proper carrying on of food and drug problems.

In the opinion of the writer, taking as a unit a city of one million population and allowing the reasonable sum of seventy-five cents per capita for health administration, twenty cents per capita should be set aside for laboratory and inspectional work. If such a budget be allowed, the sum set aside, should be ample for proper food and drug administration and included in twenty cents. Take care of the needs of the city for other technical and professional work such as laboratories would be called upon to perform. These statements manifestly are based upon the assumption that a central system of laboratories is to be instituted and that such laboratories are to be subservient to the Department of Health and that the laboratories will perform other work in addition to food and drug control. It may be stated that at the present time, some cities have instituted such a system of central laboratories and have found

the system not only economical, but also highly effective.

As to the second statement, that most States and cities have inadequate appropriations for the administration of this problem, little further explanation is needed. Generally speaking, most of the larger cities, aided by Government bureaus, such as the Bureaus of Chemistry and Animal Industries have greatly improved their meat and dairy inspection and such work is fairly satisfactory. As to milk inspection, however, much further improvement is needed and as yet the field of general food and drug administration is largely untouched. The explanation of this seeming neglect is scanty budget.

As to the third statement, that too great emphasis has been placed upon purely technical findings with the consequent neglect of the sanitary and bacteriological facts, the explanation may be made in a few words: Absence of existing bacteriological standards, coupled with neglect on the part of health agencies to properly educate courts and people as to the true facts and importance of these facts. If such statements be correct, manifestly, the efforts of any food and drug administration should be directed toward the proper education of courts and until such propaganda is fulfilled, technical standards must be the basis for enforcement. In the opinion of the writer, food administration in the near future will be based primarily upon sanitary and bacteriological findings. Before enforcement based on such standards can be undertaken, intelligent regulations and standards must be drawn up.

Uniform Standards Desirable

In the proposed adoption of standards based upon bacteriological findings, the Federal Bureau of Chemistry should be a great aid, since the policy of this bureau for several years has been to set the pace in food and drug investigation. In any proposed standard adoption, cooperation with the Federal Government should be the watch-word, since by all means, uniform Federal, State and municipal standards are not only desirable, but necessary for concerted and efficient administration. For investigational work with the end in view of new standards, in most instances, municipalities must depend upon the Govern-

ment to set the pace, since municipal work is intensive and appropriations limited. On the other hand, Federal and State policies are extensive and these agencies should set the pace, in the adoption of new standards and regulations.

As a final word on the subject of technical versus bacteriological findings, it may be stated that most enforcement officials have been altogether too timorous in the enforcement of bacteriological standards which are already in existence, thus relegating such standards to the status of dead-letter regulations.

The fourth statement, that in the past States and municipalities have exercised little or no control over the advertising of food and drugs cannot be logically contradicted. Advertising by newspaper, magazine or word to mouth, has always been an effective weapon in the hands of the merchandiser. Advertising kept within reasonable bounds is not only legitimate but also necessary to the life of any business. We as administrative officers should not interfere with or hamper legitimate business, but should exercise the greatest diligence in the proper regulation of any activity which has such an important bearing upon the health of the community.

The Nostrum Advertising Evil

A consideration of the nostrum advertising evil, is especially important at this time. Up-to-date health administrations provide elaborate facilities for the diagnosis, treatment and prevention of disease and at the same time encourage the defeat of their main project, the conversation of health, which is vitally attacked when they countenance the unregulated advertising and sale of the nostrum. The medical profession is also largely responsible for this situation, since it has never taken a stand against self-medication and ignores the drug department of the cross-road store.

From the economic and human welfare stand-point, much evil has already been accomplished by the sale of worthless nostrums. Millions of dollars are expended by the American public annually for the nostrum. It is evident that a still greater potential sum is squandered in idleness consequent to the useless waiting for cures and finally many valuable lives are shortened because of ill-advised, dependence on proprietary preparations instead of scientific treatment.

Foods May Be Wrongfully Advertised.

In a lesser degree foods may be advertised in such a manner as to menace the welfare of the community.

The present Federal foods and drugs act is adequate as to admiration and misbranding and the Bureau of Chemistry should be commended for its excellent law enforcement in the past few years. This bureau, however, can control interstate commerce only, but not advertising, especially that form which is limited to municipal and intra-state commerce. The present Federal system of law enforcement consists in the investigation of, seizure and forced correction of adulteration or misbranding and in many cases the imposition of a fine. The violator of Federal laws is then permitted to relabel goods and to furnish a bond for the execution of the same, but, no penalty can be attached for fraudulent advertising other than that appearing upon label or carton. It is, therefore, evident that the most potent means of sale still rests in the hands of the violator, namely, advertising media.

If such be the case, it is then necessary for States and municipalities to draw up laws which may adequately control this situation. It is, therefore, suggested that all State and municipal food and drug codes have incorporated in them advertising laws, with sections devoted to misbranding matters and the enforcement of such sections should be charged to State departments of Health or Agriculture and local health agencies.

Having charged the enforcement of such advertising sections to the agencies mentioned above, it is necessary to have legislation amending food and drug laws in such a way that such newspaper or magazine misrepresentation may be considered in court as label misbranding. It may be mentioned that at this time, health agencies have no control over advertising misbranding, except as may be carried on by cooperation between the advertising interests and enforcement agencies.

It is apparent that any advertising legislation to be effective should be comprehensive enough to enable the exclusion from the mails of any publication bearing advertisements of products which have already been indicated. The constitutionality of such a measure might be questioned, nevertheless, efforts towards such legislation should be made, since experience of the past has shown that indictments have not always meant vigorous prosecution and trials have often been indefinitely postponed.

It should be emphasized further that health agencies in the past, have been rather negligent of their opportunities in their control of fraudulent advertising. No earnest effort at cooperation with advertising interests and better

business commissions has made in the attempt at exclusion of fraudulent advertising from high class publications. Much good could be accomplished even without the aid of laws, if enforcement agencies realized possibilities along the line of intelligent cooperation and instructive criticism.

Municipal License System

The fifth statement emphasizes the need of an effective municipal license system or food and drug handling. Obviously the purpose of a license from the health standpoint, is to insure sanitary control over an establishment. If a license system is to be effective the power of revocation of such license must lie in the hands of the health administration. A local license system or pharmacies and drug handlers is especially important, since by this means alone can the itinerant vendor of such merchandise be controlled. In addition to the licensing of establishments, control of both persons and preparations is imperative.

All food handlers should be compelled to submit to physical examination and any person afflicted with communicable disease excluded from employment. This regulation is manifestly a health measure.

Manufacturers of proprietary drugs should be required to register with State or local enforcement agencies, formulae, carton, label and proposed advertising copy, before their preparations be placed upon the market for sale. At the present time, two cities have regulations of this sort.

The sixth statement, emphasizes that in municipal control, useless duplication of work, especially along inspectional lines may be avoided, provided technical and inspectional work are incorporated under one bureau in charge of officials possessing technical training. The advantages of such a system are obvious: First, both inspector and analyst have an intimate knowledge of all phases of any particular problem: Second, Inspectors may be better trained because of intimate contact with the laboratory and under the tutelage of technically trained men: Third, the official in charge of food and drug administration may administer problems more intelligently being in contact with all phases of the work.

In conclusion it should be emphasized that in addition to previously suggested improvements, municipal food and drug control should be based upon cooperation between Federal, State and municipal agencies, since it is only by cooperative efforts that we may be able to effectively control and regulate this problem.

Other papers read at the convention of the Association of American Dairy, Food and Drug Officials will appear in the November issue of The American Food Journal.

EDITORIAL

The Dairy Record Approves Stand of The American Food Journal

THE Editor extends a vote of thanks to our valued contemporary, "The Dairy Record," for its recent backing up of The American Food Journal in its attempt to temper the extravagant language of some of our food advertising with sound knowledge and common sense.

The admirable editorial of "The Dairy Record" is worth quoting:

"We have felt that the dairy industry was placing too much stress on the vitamine proposition and not enough on the general food value of milk. We do not underestimate the value of the great discoveries which have been made within the last few years, but we do feel that the industry should not base all its arguments for the use of dairy products upon the presence of these little-known substances in butterfat.

"To harp constantly upon vitamins to the exclusion of the other merits of milk and its products is both dangerous and unnecessary. It is dangerous because there is so little exact knowledge of them, and scientific opinion is at such variance regarding their functions and habitat, that the consuming public is liable to become confused by the maze of conflicting claims and relegate the whole subject to the limbo of scientific buncombe. Or, some day, some bright young man is going to announce that he has succeeded in isolating Soluble A, B and C, and throw in X, Y and Z for good measure, and that he is now prepared to sell them, in neatly labeled capsules, to oleomargarine manufacturers in car lots.

"It is unnecessary, because no other food possesses the balance, the palatability and the digestibility to the same degree as milk. No other edible fat can rank with butterfat as good for the human body. The proteins, the carbohydrates and the mineral salts of dairy products seem to have been prepared especially by nature as food for the human race.

"No man would care to live solely on milk, perfect food though it may be. Most of us consider meats, vegetables and fruits a necessary part of our diet. But, unfortunately, we have somehow half way given the impression that we, as an industry, are antagonistic to the use of meat. The idea is ridiculous, of course. We know that too much meat and not enough dairy products appear on the average man's table, but there is no desire to remove it entirely from the diet.

"The dairy industry can well take a sane attitude toward the propagation of knowledge of the merits of dairy products as foods. There is no need either to stress certain merits of these foods to the exclusion of others or to oppose the use of any food appearing in the average diet."

A few more utterances like the above and we shall be several steps further on our way to sound cooperation and improved nutrition.

"Morally Wrong," Says Newspaper of Filled Milk Legislation

THE AMERICAN FOOD JOURNAL has so often pointed out the iniquities of legislation against the manufacture and sale of filled milk that this time it begs leave to quote what another publication says, a daily newspaper, if you please, which ordinarily is not expected to have such keen insight into a trade problem as is shown by the Louisville Courier-Journal in an editorial headed, "Morally Wrong," which it published on September 21. The editorial follows:

Wisconsin has passed a law forbidding the manufacture and sale of "filled milk." While the bill was pending it was declared that it was designed to prevent imposition upon consumers. Whole milk, it was argued, is better food than "filled milk." Therefore, the public should be protected against those who would sell the inferior food.

The Wisconsin dairy farmers, or some of them, now are eating oleomargarine. It is not considered superior to butter in flavor or in nutritive value. But, like filled milk, it is food and it is harmless. Dairy farmers have a right to eat it, for economy's sake, as they have a right to eat cheese which sells for 35 cents a pound, declining to buy cheese which sells for half a dollar a pound.

Of course, what may be table economy may prove to be false economy for the dairymen because it injures their business.

Says Hoard's Dairyman, a prominent Wisconsin weekly:

"It is a well known fact that many dairymen who milk cows consume oleomargarine instead of butter. These men complain of the low prices of dairy products and yet they are doing their part to keep them low and make them lower. The quantity of milk which oleomargarine replaces amounts to about five billion pounds equal to the milk of 900,000 cows, or one-half of the cow population of Wisconsin. This five billion pounds of milk is sufficient to materially depress the prices of all dairy products. It is difficult for us to conceive the reasoning of the dairy farmers who consume oleomargarine. They say to the public through their actions, that dairy products are too high in price and they cannot afford to eat them. Their practice recommends oleomargarine and condemns their own products. If the man who produces dairy products does not eat them freely, how can he expect the consumer in the city to purchase them?"

The oleo-eating dairyman might reply that Japanese rice growers in many instances sell high-grade rice and buy a lower grade to eat; that the Kentucky horse breeder in the halcyon days of saddlers and harness horses often sold horses better than his family could afford to ride or drive; that the wife of the proprietor of a dry goods store does not always wear the most expensive goods her husband sells; that the best apples produced in Virginia are sold largely in England and elsewhere at prices Virginians cannot pay; that a dairyman must live and if he cannot afford milk and butter, still he must live, and his meager table budget is his misfortune, and his economics not his fault.

But Wisconsin dairymen eat oleomargarine after procuring the passage of a bill forbidding residents of Wisconsin cities to use filled milk. They wish, by legislative enactments, to compel city residents to be liberal buyers of milk while the producers elect not to eat butter.

The filled milk prohibition bill was morally wrong. It was passed through the immoral influence of Wisconsin dairymen, who declare it criminal to sell a substitute for milk which is partly milk and who buy a substitute for butter which is not partly butter.

Official Control Over Food Advertising Suggested

UNDER existing laws, States and municipalities exert little or no control over the advertising of food products, except as may appear upon the label. Dr. J. Knapp, chief diagnostician of laboratories, Cleveland, sees the need of new legislation which will give food authorities the power to pass upon printed statements regarding foods with the same force as if the statements appeared upon the label. In other words, Dr. Knapp's idea is that no statement should be permissible in advertising that would be misbranding if it appeared on the label of the package.

This proposal goes a step further in food control than anything which has yet been done; but it is in line with efforts which have been made in other trades for the passage of "Truth in Fabric" laws which would prohibit, for example, the advertising of a garment as "all wool" if in reality it was part cotton. The leading advertising publications have for years advocated the passage of such "honest advertising" laws and a movement to apply the same control over food advertising would not be a surprising development.

Baking Industry Has Own Sanitary Code

Invites Help of Food Officials in Raising Standards of Flour Products to Higher Plane

By Dr. H. E. BARNARD

Director, American Institute of Baking; Former Food Commissioner of Indiana

WE have made amazing progress in the development of food control legislation in the past decade. I well remember when the first sanitary food law was enacted, when the first sanitary inspectors began to study the adage, "Many foods though chemically pure are sanitarily unfit to eat."

Not so long ago the concern of the food manufacturer ended when he placed the label on the package and sent it from his shop. As to the methods employed in getting it to the table of the producer he gave little thought. Candies, bread, prepared foods were all exposed to dust and dirt, to swirling air currents, flies, mold contamination. The thirsty traveler gave little heed to the character of the water he sipped from the common drinking cup and little thought to the sanitary condition of the milk his children drank. The important question was, "Is the butter fat content of the milk above the legal limit? Is the candy colored with vegetable dyes or with coal tar products? Is the ham in the sandwich or the sausage and Hamburger steak preserved with borax or treated with sodium sulphite?"

The American people may be forever thankful that changing conditions have eliminated from officialdom the narrow-visioned sleuths whose whole existence was concerned in the suppression of technical law violations and whose vision never carried him beyond the Babcock test into the dairy where the milk was produced. And as we have grown more tolerant in interpreting and in enforcing food and sanitary legislation we have learned, I believe, that the difference between the official serving the State on the one hand and the manufacturer serving the people on the other is so slight as to be negligible.

Food Laws Beneficial to Manufacturer

There is no food law on the statute book which is not directly beneficial to the honest manufacturer. There is no sanitary code which does not offer the producer and distributor of foodstuffs helpful assistance in carrying on his industry. We are working on a common ground, for a common purpose,

that of seeing to it that the food of the American people is high in quality, produced under sanitary conditions by healthy workmen and honestly sold under adequate labels. That this desire on the part of the state and of the manufacturers may be carried out is the only reason, I take it, for the passage of food and sanitary laws and for the maintenance of departments for enforcing legislation.

Is it not an obvious fact, therefore, that every action taken by the manufacturer which will in the slightest degree tend to aid the inspector at his work or the chemist in the laboratory is in the public interest? Is not this the reason why one food industry after another is organizing and establishing its own research laboratories and setting up its own sanitary and ethical codes? And do not these evidences of a real appreciation of responsibility to the consumer presage the dawning of an era when legislation will be based on the desires of industries for constructive guidance rather than on any need for protection by policing and for punishment for the unscrupulous.

Baking Industry Has Own Sanitary Code

The baking industry has, for example, set up its own sanitary code. This code has met with the heartiest approval by health officials and sanitarians. Your members have given generous evidences of their interest in the plans of the baking industry to set up its own sanitary ideals and to scrutinize the character of its raw materials and the quality of its finished product in its own control laboratories.

The fact that of all the States in the Union but seven have declined to cooperate with the American Institute of Baking and the American Public Health Service in making a survey of the baking industry, and that many health and food departments have rendered us assistance for which we at this time publicly acknowledge our thanks, is, I think, most conclusive evidence that the desire of the bakers of this country to set up and maintain high ideals of sanitation and service find in you a cordial and intelligent appreciation.

And on the other hand, how may we best answer your query, how can we help you? In general, the baker will aid you in formulating any sanitary codes which will eliminate the insani-

tary shop, the unclean and diseased worker, the unintelligent proprietor, the careless and untrained employee. The baking industry, charged as it is with the responsibility for turning every year more than 60,000,000 barrels of flour into food for all mankind, has no patience with that part of its industry which in the interest of the public health should seek some livelihood not concerned with food production.

The baker will cooperate with you in wiping out the host of "just as good"—"substitutes for 's'"—"imitations of the real thing" which are the vexation of every buyer. There is no need for cheap materials for the baker, no call for phony flavors, misleading colors, fillers or adulterants.

The American Institute of Baking has devised a plan of certifying the virtue of goods which are true to composition and claims as set forth by manufacturers. In the progress of this work we have found many interesting things,—such as shortenings filled with glycerine and salt; condensed milk low in fat content; gluten flours largely devoid of gluten; malt sirups far below their declared diastatic value; flours excessively high in moisture content (one lot of six samples showing moisture contents in excess of 13.5 per cent in five cases).

Baking Institute Invites Cooperation

Our work cannot, of course, produce all the results we hope for unless your departments find it possible to check up and punish flagrant violations. We urge such action; we offer our assistance in any movement which will insure the baker a better quality of raw doorway so honest in its every letter bread, made of better ingredients, under ideal sanitary conditions.

The day may come when we shall have our own corps of inspectors and investigators, just as we have our own chemical and research laboratories. But until that time may we not hope for the cooperation of your organizations? We want to use the inspector, whose salary we pay, not as a trouble hunter but as an assistant in building up our great industry to even higher levels of service. And we want to make the welcome sign over our doorway so honest in its every letter that it will be a pleasure instead of a mere job for you to come into the modern bakery.

Extracts from a paper read at convention of Association of American Dairy, Food and Drug Officials at Kansas City, October 3-6.

THE CONFERENCE TABLE

A Means by Which the Manufacturers, Consumer, Research Worker and Educator May Discuss Their Common Problems

By WINIFRED STUART GIBBS

Food Manufacturer Can Render Valuable Help to All Food Workers

By LUCY H. GILLETT

A PROMINENT physician has said that if we could make people eat properly and follow rules of health, 95 per cent of the illnesses of adults would be done away. To educate the millions of people in the United States would be a tremendous task, one that would take years to accomplish with our present means of enlightening the public.

The Manufacturer and the Consumer

No one has a greater opportunity for educating the masses in the principles of good food habits than the manufacturers through the system of wide advertising used by them. At the same time the manufacturer gets his return in increased business.

The public, as it rides through the country, either in trains or automobiles, or as it turns the pages of the monthly, weekly or daily magazines or papers, reads of the foods on the markets and of their various advantages. The public absorbs scientific truths and decides to include them in its daily living. The layman learns that he needs energy, that he needs iron, and that he needs vitamins. He also reads that these various factors may be obtained in certain foods. It is unfortunate that the so-called "facts" as to sources of these necessary foods constituents are not always reliable or sane but the results prove that advertising is one of the very best ways of educating masses of adults.

The Consumer and the Research Worker

If the public is deceived, it is not for long, however. The research worker soon discovers what is and what is not scientifically correct. Then the layman gradually learns the truth, and discovers which manufacturers are putting out the best product. The layman wants to buy where he can get the best return for his money and a demand creates a supply of high quality goods. Thus the consumer controls the market by demanding good quality and high standards in food value and purity of product. The consumer and the research worker help the honest manufacturer while the honest manufacturer serves the public and builds up an ever increasing business.



Lucy H. Gillett

Editor's Note—Miss Gillett, author of this article, is peculiarly fitted to discuss the matter of cooperation in food matters. Her training has meant association with some of the most eminent authorities in the field and she holds the degree of M.A. from Columbia University. Miss Gillett's experience has been equally broad as teacher of foods in the grades and in college, research worker in food economics with Prof. Henry C. Sherman of Columbia University, as organizer of a Central Nutrition Bureau in Boston, and as the present Superintendent of the Nutrition Bureau of the New York Association for Improving the Condition of the Poor, she knows all sides of the question and has something to say to the manufacturer, the consumer, the research worker and the educator.

The Research Worker and the Manufacturer

More and more the research worker is providing invaluable aid to the manufacturer. The manufacturer

knows that good products are in demand and he is dependent upon the person who can tell him how to improve his products both in quality and food value. The research worker may determine ways in which the product may be improved; he may discover unrecognized qualities of foods already on the market, qualities that serve for advertising purposes. He may detect the first trace of deterioration or spoilage and thus save human lives through preventing illness from spoiled food; he may save the reputation of the firm by avoiding the loss of the public confidence; he may also prevent the loss of thousands of dollars through saving contamination of other food and through loss of business.

When the public learns that a manufacturer has his interest at heart he is going to have greater confidence in him and be a frequent purchaser.

The research worker and the manufacturer combined present a mighty power for good.

The Home Economics Teacher and Public Health Worker Are Valuable Allies

We must educate both children and parents for best results. Oftentimes the mother who knows that a child should drink milk, may struggle in vain to get the child to drink it until Billy comes bounding in from school or the health center with a demand for milk because teacher or nurse says he must drink it.

The person trained in home economics because she understands what foods are necessary has a splendid opportunity to help to save the health of the child. The father of a little undernourished Italian boy was very proud of the improvement in the physical condition of his son. He went to the teacher one day and said, "Why don't more teachers tell the children what is good for them? The children won't mind us, but when you say milk is necessary, they demand it."

In addition to helping the child, the teacher at school or in public health is helping the honest manufacturer. She learns from the research worker what the children need and what foods best

supply these needs. If there is a question of economy she is going to tell them where they can get the most food value for the money they have to spend. The children take the information home to the parents and in many cases the parents are influenced to do as the teacher says. If this information coincides with the advertisements

or facts stated about these foods the chances that they will use these foods are doubled.

The research worker supplies facts for the teacher, the public health worker, and the manufacturer. The teacher, the public health worker and the manufacturer educate the public. Good business and good health should

go hand in hand. It involves inter-relationships and close team play.

If the research worker, the teacher, the public health worker and the manufacturer were to make a systematic attempt, through team play, to make people realize what healthful living means, we might see the doctor's prophecy come true within a very short time.

Secretary of Butter Manufacturers Association Discusses Butter Standards

Editor, The American Food Journal:
IN one of your recent issues there appeared an article by Dr. Abbott stating that if the present butter bill, H. R. 12053, were enacted into a law, it would increase the butter production of the country 45,000,000 pounds without adding anything to the food value or, in other words, the writer, I presume, wanted to convey the impression that the creamerymen would be selling 45,000,000 pounds of water. This statement is so at variance with the facts that I am surprised that such a statement should be made.

We have no standard fixed by Congress that applies to the United States as a whole, concerning the composition of butter. A ruling made by the Joint Committee on Definitions and Standards, which came in with the Pure Food Law in 1906, is the only standard we have. At the time of its adoption a protest was filed by a committee composed of some of our leading college professors and manufacturers of butter. They pointed out to the Secretary of Agriculture, the late Hon. James Wilson, and the Chief of the Bureau of Chemistry, Dr. Harvey Wiley, that the standard was out of line with the standards adopted in other countries and was too high for the average creameries to comply with. They both assured the delegates that as long as butter contained 80 per cent fat, no action would be taken by the government. Hence, the creamerymen of the country have been trying to comply with an 80 per cent fat standard for butter all these years.

It is true that a number of states adopted the Federal ruling of 82½ per cent fat, so as to be in line with the federal department, but in no state has 82½ per cent fat been required. Wisconsin enacted a law requiring 82½ per cent fat at that early period, but it was later amended to permit 2½ per cent tolerance.

Secretary of Agriculture, Hon. David Houston, who followed Secretary Wilson in office, issued a circular on November 10, 1919, which read as follows: "The Federal officials do not recommend the seizure when butter contains as much as 80 per cent milk fat and is otherwise in accordance with the law. All butter that has been

seized under the federal Food and Drug Act contains less than 80 per cent of milk fat and a proportionately higher per cent of water."

Secretary of Agriculture, Hon. Edward Meredith, who succeeded Secretary Houston, favored an 80 per cent standard and stated that he expected to have the ruling changed to 80 per cent as he felt there was no necessity for having a ruling that was non-enforceable and out of line with the standards adopted in other countries.

The present Secretary of Agriculture, Hon. H. C. Wallace, recommended to the Joint Committee on Definitions and Standards at their June meeting this year that the fat standard should be changed to 80 per cent as he felt, like Mr. Meredith, that there was no use in their having a ruling that was non-enforceable. The committee recommended the following definition for butter: "Butter is the clean, sound product made by gathering in any manner the fat of fresh or ripened milk or cream into a mass, which also includes a small portion of the other natural milk constituents, with or without salt, and contains, all tolerances provided for, less than sixteen per cent (16.0 per cent) of water, and not less than 80 per cent (80.0 per cent) of milk fat. By Acts of Congress, approved August 2, 1886, and May 9, 1902, butter may also contain added coloring matter."

England, that imports more butter than all other countries combined, has just a moisture regulation of 16 per cent which practically means an 80 per cent fat standard as the casein in butter is generally estimated at 1 per cent and the salt at from 2½ per cent to 3 per cent which leaves 80 per cent fat. This standard was adopted by the English Government after investigating the subject for about a year and bringing in experts from other countries. Later on some concession was made to the Irish pickle butter which was permitted to contain a higher per cent of moisture. Germany has a law requiring 80 per cent fat for salted butter with a limit of 16 per cent moisture. For unsalted butter their law requires 82½ per cent fat. France works on a moisture regulation

of 18 per cent. Denmark, which exports more butter than any other country and is supposed to be producing the finest butter in the world, has a moisture regulation of 16 per cent for their export butter and a 20 per cent moisture regulation for butter for home consumption. The Danes, I presume, adopted the 16 per cent regulation for export butter due to the fact that their butter practically all goes to the English market.

As a matter of fact, at the present time, butter finds its way to our markets, with a fat content of possibly from 77 per cent to 83 per cent or 84 per cent, depending somewhat on the season of the year. Therefore a law passed by Congress requiring that all butter should contain a minimum fat content of 80 per cent will increase the fat content of butter, rather than decrease it. In complying with a fat standard of any kind, the per cent of fat will have to be higher than the per cent fixed by law. The fat content of butter cannot be controlled to a fraction of a per cent like the moisture content, as in controlling the fat, the salt, casein and moisture have to be controlled also. In the laboratory of the American Association there are two chemists who are constantly engaged in analyzing butter sent in by creameries in different parts of the United States. These analyses reveal the fact that where manufacturers are trying to incorporate as near 80 per cent as possible, the fat content of their butter frequently runs 81 per cent and above. Hence, the statement that if the bill were to become a law, it would add 45,000,000 pounds more butter to the annual production of this country is not only misleading, but is false. The bill now pending, as stated above, would have a tendency to increase the fat content of American butter and would be the means of furnishing a protection to the consuming public and would render fairer competition among the manufacturers themselves as a law has more effect than a ruling.

A. L. McKAY,
Secretary American Association
Creamery Butter Manufacturers.

The Best Things From Current Food Magazines

A Digest of the Month's Periodicals for the Busy Reader

Classifying Foodstuffs According to Modern Understanding of Body Needs

OWING to the great strides which have recently been made in the allied fields of sanitation and food chemistry it is possible to discuss the relation of food to health from the standpoint of nutrition in a manner which would not have been possible even a few years ago.

Moreover, during the past decade or so food authorities have so successfully combated the evils of bad sanitation and infection as well as adulteration that today we may be practically certain of the wholesomeness of any food product offered for sale.

This means, according to Professor Henry C. Sherman of Columbia University, that the efforts of food authorities may now be concentrated on matters of nutrition.

That Dr. Sherman himself is one of the leaders in this field is well known, and in the September 15 issue of the *Nation's Health* he says:

"So rapid and interesting has been the development of what is often called the newer knowledge of nutrition that many appear to have been misled into supposing that it has supplanted or is trying to supplant the conceptions of nutrition which were current a decade ago. At the risk of repeating the obvious, I believe we should constantly insist that the newer knowledge of nutrition does not supplant but does supplement our former views. All that we have ever known about protein and calories is as important as it ever was, and we have learned to appreciate the importance of the mineral elements and vitamins also. Each of these four factors should be given due emphasis without overshadowing any of the others. Calories, protein, mineral elements, and vitamins all are equally important in the sense that each of these four factors or groups of factors is absolutely essential and must be properly provided in order that the food supply may be adequate."

In the proper application of knowledge lies its power for usefulness and Dr. Sherman performs just this service when he goes on, first to discuss the "never knowledge of nutrition" and then to show how it supplements rather than supplants our former knowledge:

We now understand how it is that fruits, vegetables and especially milk in its various forms, serve (in ways which until recently could not be fully understood and appreciated) to make good the deficiencies of breadstuffs, meats, sweets and most fats.

The technique of nutrition studies is also of special interest at present and later in his paper Dr. Sherman says:

"While agreeing with the eminent pediatrician who said that, a 'rat isn't a baby and probably never will be,' yet I should also point out that by properly planned and adequately controlled experiments we can learn much from rats which is applicable to the feeding of babies and grown people as well."

Experimental Work With Leaky Butter Brings Interesting Conclusions

The resources of our Agricultural Experiment Stations are constantly being utilized in the service of the various branches of the food industry and Dr. A. C. Dahlberg offers to practical creamery men the results of his work on leaky butter. This work was done at the New York Agricultural Experiment Station in Geneva under the supervision of Prof. E. H. Farrington of the University of Wisconsin.

Dr. Dahlberg's paper, "The Causes of Leaky Butter" in the *Journal of Dairy Science* for September, 1922, tells of the methods employed to determine leakiness, shows the effect of size of churning, also the effect of temperature, the amount of water, of seasonal conditions of salt content.

In summing up Dr. Dahlberg says:

Some of the results obtained from experimental work reported in this article are contradictory to text book teachings and the opinions of many practical creamery men. For that reason the conclusions drawn from the data presented are enumerated and briefly summarized as follows:

1. The leakiness of butter is not affected by (1) the churning temperature, (2) time held cold after pasteurization previous to churning, (3) the moisture content of the finished butter, (4) high percentage of the soft butter fats.

2. Butter is made leaky by (1) large churnings, (2) cold wash water, (3) working butter in water, (4) not enough working after salting, (5) high salt content, (6) cold refrigerator.

3. The amount butter is worked has a greater influence on leakiness than any other factor and should be used to control leakiness.

4. Wet looking butter is not always leaky.

5. The openness of texture is the best indicator of the leakiness of butter.

6. Butter made leaky lost 4.2 per cent in weight during a period of six months in cold storage and butter made non-leaky lost only 1 per cent in the same length of time.

Possibilities of Teaching Special Foods in Domestic Science Classes

A good opportunity for cooperation between food manufacturers and the public schools is indicated by W. B. Owen, president of the National Educational Association.

In the *New Macaroni Journal* dated September 15, 1922 Wallace Piper brings out the fact that 12,139 schools are studying the industries growing out of the fundamental needs of food, shelter and clothing. He says:

How are such things taught?

There is a city in Illinois where the 10,000 pupils spend an entire month studying a single food product. Every study—reading, writing, spelling, geography, history and so on is about that food. They learn where these foods come from, how they are used and their arithmetic lessons deal with what they cost.

In a New Jersey school the six year olds "play family" all the school year. While they are playing at running their homes for their families of dolls they learn about different foods. They buy supplies for the home from the department store operated all the school year by the seven year olds. This playing at living takes the place of all other lessons.

Traveling collections of actual food specimens or models are studied by each class in nearly every school.

Mr. Piper makes interesting application of these facts as in the interests of macaroni manufacturers when he writes:

Increase the consumption of macaroni, spaghetti and noodles through having the facts about them taught in the public schools of America. Thousands of schools are going thoroughly into such subjects.

Studying Sweet Potato Varieties with Reference to Their Canning Qualities

Experimental work on the problem of canning sweet potatoes was begun in 1918, with a view to determining which varieties were most suitable for canning. This work is described by C. A. Magoon and C. W. Culpepper in *The Canner* for September 30, 1922.

The varieties and strains used in the tests included the Florida, Belmont, General Grant, White "Yam," Pierson, Miles, Early Carolina, Yellow Strasburg, Early Red Carolina, Red Brazil,

Yellow "Yam," Purple "Yam," Dooley, Triumph, Porto Rico, Mullihan, Norton, Haiti, Gold Skin, Japanese "Yam," Ballinger's Pride, Big Stem Jersey, Catawba, White Catawba, Yellow, Nancy Hall, Southern Queen, and a number of unnamed strains.

The following procedure seemed to offer promise of avoiding most of the difficulties and it was temporarily adopted:

(1) Peeling the potatoes raw, after washing to remove dirt, and cutting the larger potatoes into pieces to facilitate cooking.

(2) Rinsing the potatoes in cold water, placing them at once in a steam retort, and cooking for 10 minutes at a steam pressure of 10 pounds.

(3) Placing the cooked potatoes at once into No. 3 sanitary tin cans, using a wooden plunger to pack closely and firmly.

(4) Placing cans thus filled in the cooker and steaming in flowing steam for 15 minutes.

(5) Crimping on the covers, thus tightly sealing.

(6) Processing for 70 minutes at a steam pressure of 15 pounds and cooling by placing cans in tiers on the floor of the laboratory.

Those in charge of the work found, on opening the canned material that the product from all the varieties was quite firm. On the basis of observations made at this time the Miles appeared to be the best among light colored varieties, the Dooley, Nancy Hall and Mullihan were most satisfactory of the yellowed fleshed and the Early Red Carolina was best of those intermediate in color.

These tests however were not final as in some instances the processing had caramelized some of the sugar, thus browning the flesh of some of the lighter varieties.

The next step was to determine the processing temperature and time periods yielding the desired quality from the standpoint of appearance and flavor. Continuing the authors state:

Potatoes of the three varieties, Nancy Hall, Big Stem Jersey, and Southern Queen, were washed, placed on trays in a steam chamber, and subjected to flowing steam for 30 minutes. At the end of this time they were removed from the chamber, rapidly peeled by hand, and then passed through a food chopper. This gave uniform material for the tests. One lot of No. 2 and No. 3 cans of each variety was sealed at temperatures ranging from 70 deg. to 80 deg. C., and then another lot was allowed to cool to room temperature and then processed. From each of these lots a series of cans was treated as follows:

(1) 1, 2, 3, 4, 5, and 6 hours continuously in boiling water.

(2) 1½ hours in boiling water on each of three successive days.

(3) 30, 45, 60, 75, 90, and 120 minutes in the steam retort at 109 deg. C. (steam pressure about 5 pounds).

(4) 30, 45, 60, 75, 90 and 120 minutes at 116 deg. C. (steam pressure about 10 pounds).

(5) 30, 45, 60, 75, 90 and 120 minutes at 121 deg. C. (steam pressure about 15 pounds).

Examination of the contents of these cans showed that the present needs the most satisfactory results could be obtained under the conditions described with No. 2 cans processed at 116 deg. C. for 45 minutes and with No. 3 cans treated similarly for one hour. Satisfactory results as to quality were likewise obtained both by the intermittent processing in boiling water for 1½ hours and by continuous boiling in the water bath for three or four hours.

Discussion of later phases of the work will be given in an early issue of *The Canner*.

Research Committee of the American Home Economics Association Working on Three Problems

The Research Committee of the American Home Economics Association is working on problems of nutritional chemistry, field investigations in nutrition and methods of food preparation.

Agnes Fay Morgan of the University of California tells in the *Journal of Home Economics* for October, 1922, something of the committee's plans and recommendations, as well as what it has already accomplished.

Home Economics workers interested in research will find the suggestive problems as listed by Professor Morgan of practical help. Among these topics are:

1: Variations in basal metabolism of women and children.

2: Changes in composition of the blood.

3: Studies of origin and precursors of metabolic end-products in the urine and feces.

4: Determination of the gross digestibility and rate of digestion of foods.

5: The chemical analysis of foods.

6: The biological analysis of foods.

7: Studies in infant and child feeding.

According to Professor Morgan it is in the sixth division of the field that the greatest amount of work remains to be done. The teaching of the doctrine of vitamins, for example, says Miss Morgan, becomes uninspired and unconvincing if there are no practical experiments with living animals.

A few of the titles of articles reported from home economics laboratories will illustrate the width and variety of this field.

1. A. Richardson and H. Green. Nutrition Investigations upon Cottonseed Meal. *J. Biol. Chem.*, 25, 307 (1916); 30, 243 (1917); 31, 379 (1917) (University of Texas).

2. M. S. Rose and L. F. Cooper. Biological Efficiency of Potato Nitrogen. *J. Biol. Chem.*, 30, 201 (1917) (Teacher's College, Columbia University).

3. A. L. Daniels and N. B. Nichols. Nutritive Value of the Soy Bean. *J. Biol. Chem.*, 32, 91 (1917) (University of Wisconsin).

4. A. L. Daniels and R. Loughlin. Feeding Experiments with Peanuts. *J. Biol. Chem.* 33, 295 (1918) (University of Wisconsin).

5. A. L. Daniels and N. I. McClurg. Influence of High Temperatures and

Dilute Alkalis upon the Anti-neuritic Properties of Foods. *J. Biol. Chem.* 37, 201 (1919) (University of Wisconsin).

6. A. L. Daniels and J. Rich. Value of Inorganic Sulfates in Nutrition. *J. Biol. Chem.* 36, 27 (1918) (University of Wisconsin).

7. A. F. Morgan and A. M. Heinz. Biological Value of Wheat and Almond Nitrogen. *J. Biol. Chem.*, 37, 215 (1919) (University of California).

8. M. S. Rose. Utilization of Calcium of Carrots by Man. *J. Biol. Chem.*, 40, 349 (1919) (Teacher's College, Columbia University).

9. A. L. Daniels and R. Loughlin. Fat Soluble Growth-promoting Substance in Lard and Cotton-seed Oil. *J. Biol. Chem.*, 42, 359 (1920) (University of Wisconsin).

10. B. K. Whipple. Water-soluble B in Cabbage and Onion. *J. Biol. Chem.*, 44, 175 (1920) (University of Chicago).

11. M. Davis. Observations on Vitamin Content of Foods. *J. Home Econ.*, 12, 209 (1920) (University of Wisconsin).

12. M. Davis and J. Outhouse. Effect of Ration Low in Fat-Soluble A upon the Tissues of the Rat. *Am. J. Dis. Child.*, 21, 307 (1921) (University of Wisconsin).

The following titles of work no progress or unpublished are reported from a number of institutions:

1. L. Stanley and B. K. Whipple. The Influence of Cooking and Canning on the Vitamin Content of Foods. (University of Missouri.)

2. Almonds and other Nuts as Source of Vitamin A. Utilization of Calcium of Almonds. Utilization of Calcium in Man. Basal Metabolism of the White Rat. (Teacher's College, Columbia University.)

3. B. M. Newbecker. The Biological Value of Almond Proteins and Almond Oil. *M. A.*, 1922, (University of California).

4. L. D. Francis. The Effect of Dehydration upon Vitamin-B Content of Pumpkin. *M. A.*, 1922 (University of California).

Examples of the scientific type of research which is being carried on in the field of infant and child feeding are:

1. R. Wheeler and A. Biester. Nutritive Value of Some Proprietary Infant Foods. *Am. J. Dis. Child.*, 7, 169 (1914) (University of Illinois).

2. R. Wheeler. Nutritive Value of Some Proprietary Infant Foods as Milk Modifiers. *Am. J. Dis. Child.*, 9, 300 (1915) (University of Illinois).

3. A. L. Daniels, S. Stuessy and E. Francis. Nutritive Value of Boiled Milk. *Am. J. Dis. Child.*, 11, 45 (1916) (University of Wisconsin).

4. A. L. Daniels and H. English. Simple Method of Modifying Milk, *Am. J. Dis. Child.*, 17, 212 (1919).

"No claim," says Prof. Morgan, "is made that all work of this kind reported from home economics laboratories is listed in the preceding discussion. It is likely, however, that the omissions have not been numerous. A considerable volume of investigation in this field has been carried out by women primarily interested in home economics but working in other departments or under men of high rank in medical and chemical laboratories."



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Mince Meat—

That Has no Peer

Such Mince Meat must be made from the best of ingredients—fresh Greening apples, plump sun-sweetened raisins and currants, fragrant spices from the East, tender bits of beef, and snowy flakes of suet—all these expertly mixed together by a chef who for twenty years has been making Mince Meat for Libby.

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Chicago

Libby's



Do oatmeals differ as widely as flowers?

YOU wouldn't phone your florist and say: "Send me a dozen flowers."

Yet that is almost the same as asking your grocer to send you "a package of oats." There is as much difference between different brands of oats as between daisies and roses.

Slow toasting in the old-fashioned way over coal fires makes H-O golden brown in color and gives that delicious H-O aroma and flavor, and—

Steam-cooking under high pressure breaks down the starch cells and dextrinizes the starch, making H-O digestible and nourishing—that's why it is different from ordinary priced oats.

It digests better, makes children healthy and strong, and is perfect food for everyone.

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This H-O advertisement is appearing this month in the following publications—Ladies' Home Journal, Pictorial Review, Good Housekeeping, American Magazine, Sunset, Scribner's, Harper's and American Cookery.

Corn Sirup Versus Glucose

An Explanation of Process of Manufacture—Production in Recent Years Has Reached Million Pounds Annually

By Dr. W. P. CUTLER

Secretary, American Manufacturers' Association of Products from Corn

THE heat and energy of the body comes from the dextro-eglucose which is the normal sugar of the blood stream. This important sugar results from the digestion and subsequent assimilation of starch, cane sugar or other sugars.

Dextrose-glucose is also made by chemical process, which process is very similar to the conversion by digestion of starch or sugar from the starch of corn, rice, barley, or any other starch available, dependent upon the country where the same is made.

In this country dextrose-glucose or "corn sugar," as it is commercially known, is made from the starch of corn. Corn being king of cereals is the cheapest and most available source of starch—3,250,000,000 bushels being produced in one year.

Corn sugar is the result of the complete hydrolysis of starch. However, another very important product is produced, which may be termed the result of the incomplete hydrolysis of starch and which is composed of dextrin, dextrose-glucose and maltose, and is properly known as corn sirup.

The starch having been separated from the ground corn by a water process known as tabling, wherein the starch, because of its heavier gravity sinks to the bottom, is mixed with about 1-10th of 1 per cent of hydrochloric acid—the acid of the stomach used in the digestion of proteins—together with a large amount of water and is then placed in what is known as the converter or digester and under the influence of heat, in the presence of the catalyzer hydrochloric acid, is first changed into dextrin, a portion of this into maltose and finally a portion into dextrose-glucose, following almost identically the method of conversion by the digestive function, of starch into dextrose-glucose, although, not going quite so far.

This product is then placed in vacuum pans and under the influence of heat, the moisture content is reduced, resulting in a sirupy mixture, the hydrochloric acid having previously been neutralized by carbonate of soda.

How the Name Originated

During the Napoleonic war, owing to the blockade of certain ports in Europe, it was impossible to get sugar. This resulted in a prize of one million francs being offered for a process which would successfully manufacture a sugar product from plants of home

growth. The chemists became interested with the result that the above process was proposed and as the product was sweet, for the want of a better name, the Greek word "Glukos," meaning sweet, was used to describe the product.

This was an unfortunate characterization, because it confused this sirup with dextrose-glucose, the blood sugar, and because of Regulation 14, section 8, circular 21, issued from the office of the Secretary of the United States Department of Agriculture, section F, reading as follows:

"An article containing more than one food product or active medicinal agent, is misbranded, if named after a single constituent."

This situation, together with the fact that certain competitors manufacturing other sirups, at once used the word "glucose" to prejudice the minds of the consumers against the use of this product—in some instances spelling the word "glucose"—necessitated a legal and comprehensive name.

When glucose is referred to by a physician, he invariably means dextrose-glucose, the blood sugar or that form of pure dextrose-glucose chemically made from the starch of corn and used intravenously in shock, in the treatment of acidosis and in sugar tolerance tests in diabetes. The sirup which has been improperly called glucose, in no instance being referred to.

The authorities at Washington, on February 13, 1908 issued the following on the labeling of corn sirup:

Washington, D. C., Feb. 13, 1908.

We have each given careful consideration to the labeling, under the pure food law, of the thick viscous sirup obtained by the incomplete hydrolysis of the starch of corn and composed essentially of dextrose maltose and dextrin.

In our opinion it is lawful to label this sirup as 'corn sirup,' and if to the corn sirup there is added a small percentage of refiner's sirup a product of the cane, the mixture in our judgment is not misbranded if labeled "corn sirup with cane flavor."

George B. Cortelyou,

Secretary of the Treasury.

James Wilson,

Secretary of Agriculture.

Oscar S. Straus,

Secretary of Commerce and Labor.

Old Prejudice Remains to Some Extent

Notwithstanding this legalizing of the term "corn sirup" for a wholesome, strictly American product, the

old prejudice of the word "glucose" still has its influence in the minds of some of the people and I regret to say in the minds of some members of the medical profession, as was witnessed at the meeting of this organization held in Miami when a man claiming to be a physician arose in the meeting and objected to the use of what he called "glucose" in any food product, because forsooth it "gummed up the kidneys." Asking him privately a few moments later what his idea was as to the source of the product he called "glucose," he advised me that he had been told that it was made from glue. No wonder he thought it gummed up the kidneys.

This paper is not a protest against the attitude of any food commissioner, requiring the use of the word "glucose," because so far as the writer knows, no commissioner insists upon the use of the word "glucose" for corn sirup, but it is rather a desire to place before the newer commissioners a brief resume of the reasons why what was in the early days, improperly called "glucose" is now called corn sirup.

In recent years manufacturers of corn sirup have in one year made over one billion pounds of corn sirup 400,000,000 pounds of which were used in the manufacture of candy in one year—because of its wholesomeness is an easily digested product and because it makes a large distribution of candies possible through the prevention of the crystallization of sugar when used.

Corn sirup is largely used by the mixers of sirup also to prevent crystallization and to make possible the consumption of certain forms of molasses because the latter is too sweet, in many instances, to be used alone.

Its combination with granulated cane or beet sugar sirup, refiners' or maple sirup, is the most popular and most largely consumed sirup in this country today.

It is also used in small amounts in the very best jams, jellies and preserves, not as a cheapener as has been claimed, but because it prevents the crystallization of sugar and because it brings out the flavor of the fruit and makes the resultant product more evenly spread.

As to the wholesomeness of this widely used food, I believe no physiologist will deny that it is the most easily digested of any carbohydrate food.

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kettles
of
silver
lining

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In the interests of the pure food movement the Beech-Nut Packing Company will furnish without cost macaroni and peanut butter exhibits to domestic science teachers, dietitians, and others engaged in the dissemination of pure food information.

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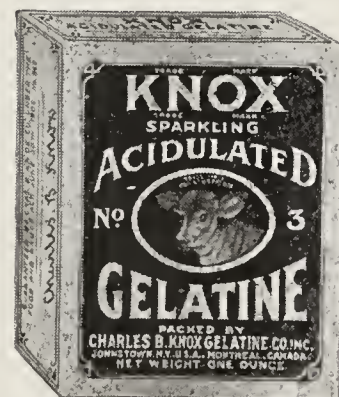
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Foodstuffs Around the World

Interesting Items Gathered by the U. S. Department of Commerce From All Quarters of the Globe

Swiss Cheese Striking Out Again

Cheese is once again forging to the front among Switzerland's industries after such a period of demoralization extending over the four years 1917 to 1920 as would prove fatal to anything but a cheese. The troublesome food restrictions have been abolished, milk animals have steadily increased, and the main causes of the four-year slump have been almost completely removed, says Vice Consul Wilkinson, Zurich, in a report to the Foodstuffs Division of the Department of Commerce. In fact the cheese industry was one of the very few Swiss industries to show any material improvement in 1921. Exports have increased and the total export for 1922 is estimated at nearly \$8,000,000. Last year this country shipped over \$60,000 worth of American Swiss cheese to Switzerland but there is no record of any cheese from the United States going into the cheese country at all during 1922.

Norwegians Want Sirup Thick, Smooth and Light

A Norwegian is particular about his sirup. Shipments of foreign sirups are constantly being turned around and shipped back to the country of origin, Consul George Ifft, Bergen, advises the Foodstuffs Division of the Department of Commerce, simply because they won't spread on bread (and cold pancakes) like butter. The so-called maple sirup doesn't usually stay long in Norway; it's too thin. On the other hand, when the sirup gets too thick en route and crystallizes, the owners are out of luck, for then it's sugar and they're soaked a high duty. And the lighter the color the better it sells. In Norway, the British have the edge on American sirup manufacturers because their sirups are bleached by processes not practiced in this country. Britain fosters this trade by an export subsidy.

Praise for American Dairies

America's system of fresh milk distribution is being held before the dairy interests of England by Dr. John Robertson, Health Officer, of Birmingham, as the exact model upon which they should conduct their business. Dr. Robertson spent two years in this country and has come to the conclusion, says Consul Herbert C. Biar, Birmingham, in a statement to the Department of Commerce, that the fault generally in England is due to poor handling on the farm and in transit. Milk in the United States averages nearly four per cent of butter fat, and it is toward this average that milk producers continually strive, while in England efforts are made to increase the quantity without due regard to quality.

Pasteurization and bottling of milk is strongly urged by Dr. Robertson, who believes that the dairy trade could effect real and substantial improvements without the necessity of legislation. In his opinion if the public would demand their milk in bottles it would be supplied.

Sweet Potato Flour a Chinese Delicacy

One of the peculiar food industries of the Swatow district of China is the manufacture by hand of flour from sweet potatoes. The flour is consumed in large quantities locally and is exported in large quantities to Siam, Singapore, and other places in the South Seas where Chinese reside in large numbers, Consul Schnar, Swatow, informs the Department of Commerce.

Its manufacture is carried on in a most primitive way by Chinese housewives, who wash the potatoes thoroughly and then grate them by hand in large earthen bowls two feet or more in diameter and about fifteen inches deep, the inner surfaces of which for a distance of ten or twelve inches from the top have been scarified in molding so that they present a rough appearance and feel to touch very much like a tin grater. Against this surface the potato is forced with a swing of the arm which carries it half way around the circumference and turns the potato into paste in a short time. The pulp is mixed with wat and strained and the soluble content settled for a day when the water is drawn off, leaving a residue of white paste in the bottom. This residue is again strained with fresh water, allowed to settle for three days, when the process is repeated. Altogether it is washed and strained four times, each straining leaving the residue whiter and purer than before. It is then spread in the sun to dry and afterwards powdered.

A vigorous woman working from early morning until late in the evening can grate about 665 pounds of potatoes into pulp, for which she is paid about 14 cents. Besides the huge quantities consumed locally over 8,000,000 pounds of the flour was sent out of China last year.

Czechs Favor American Flour

Vigorous action on the part of the agrarian interests of Czechoslovakia tending toward the imposition of a high duty on grain and flour is reported by Alexander R. Magruder, secretary of the American Legation at Prague, in a dispatch to the Department of Commerce. To maintain existing prices and thus encourage the cultivation of wheat which it claims would otherwise become unremunerative they feel that this governmental action is necessary. However, any legislation tending to increase the high cost of living would not only meet with strong opposition from all other parties but would be contrary to the governments established policy of deflation. While American exports of flour and grain to Czechoslovakia have decreased recently, at the present rate of exchange our exporters should continue to find a good market in that country, particularly inasmuch as they were able to sell great quantities in 1921 when the crown stood at 60 to the dollar and now at 40. The dispatch states that a permanent demand has been established for American flour which has gained popularity owing to its recognized superior quality.

Corn Coming Into Its Own

Besides the strip tobacco and Indian maidens carried triumphantly to the old country by Raleigh back in the fifteenth century, he had a few sacks of Indian corn. Compared with the first two items corn failed to make any kind of a hit. In fact, according to Consul Foot, Prague, the only thing they use it for now in most countries of Europe, particularly that part of Czechoslovakia, formerly known as Bohemia, is for hog feeding and distilling. According to general opinion, corn is a cross between a stock food and American impudence, and Europeans fight shy of it. But if the Agricultural Association of the Czechoslovak Republic can accomplish it, corn is going to come into its own, for a vigorous campaign is being conducted by the association, by the government, and other agricultural bodies to instruct the people as to the value of corn. Experts are visiting the various districts where corn is grown, instructing as to seed selection and the different uses of corn. American corn is being boosted by them over other corn, and everything points toward the final adoption by the Czechs of corn pone and johnny cake as a national food.

Brazilians Like American Breakfast Food

Another American food has made a big hit in South America. Prepared breakfast foods and candy "kisses" introduced in Rio de Janeiro a short time ago have swept the city, and Consul Colman feels that if other American firms would prepare exhibits for the Brazilian Centennial a large demand would be created. In a report to the Department of Commerce he mentions the special opportunity for the sale of novelty confections, easily prepared desserts, fancy tinned meats, fish, and asparagus, of which there is a complete dearth in the wholesale market of that city at the present time. Any advertising products, such as pancake flours, shortenings, etc., would doubtless find demand there, especially if properly exhibited. Owing to the incompleteness of a large number of important buildings, it is possible that the closing date of the exposition will be extended considerably beyond March 31, allowing ample time for further food exhibits.

A Chance to Make Some Money in a Depot at Port Said

Less than two per cent of the tremendous amount of provisions and supplies taken on at Port Said by ships passing through the Suez Canal is of American origin, and it is the supplying of these ships on which practically the whole commerce of Port Said depends, Consul duBois informs the Department of Commerce. Something over ten ships a day call at this city for replenishing, repairs, etc., some of which have been at sea for upwards of 45 days, and the establishment of a depot in Port Said from which American and other ships could be supplied would prove highly profitable.

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Brazilian Milk Cannery Ousting United States Product

American condensed milk is gradually losing out in the Brazilian markets due to increasing manufacture of milk by the Brazilians. The unfavorable exchange rate, which has made the cost of imported condensed milk almost prohibitive, except for the wealthy classes, has also helped restrict the sales. American Consul Bevan informs the Department of Commerce. During and since the war the United States has replaced European milks to a great extent in Brazil, and from the way imports have dropped during the last three years it is likely that American milk exporters will find that market hard to hold. Only about 580,000 pounds valued at \$35,000 were shipped to Brazil from the United States last year, as compared to 2,735,000 pounds in 1920. From January 1 to May 31, 1922, this country shipped about 500,000 pounds of condensed milk to Brazil.

Canada Holds British Bacon Market

Rumors that Canada is losing out in its bacon trade with Great Britain are strongly refuted by London importers, says Consul General Gunsaulus, Halifax, in a statement to the Department of Commerce. Instead of losing ground in the British market as reported, Canadian bacon is said to be improving its position every month. Danish bacon is a strong competitor, but a large British importer says that the Canadian article is steadily gaining in favor, and that the actual Canadian imports into Great Britain this year will exceed those of 1921.

Irish Bacon Factories Burned

Owing to internal troubles in Ireland, the London market is sustaining a serious curtailment of its supplies of bacon. One large firm, which normally supplies 6,000 sides of bacon per week to London, has lost its factories in Waterford, Limerick and Cork through incendiarism, says Commercial Attache Tower, London, reporting to the Department of Commerce. The United States continues to be the biggest supplier of bacon and ham to the United Kingdom.

Australians Adopt Yankee Sales Methods

The popular American idea has reached Australia, and soon the people of that country will be celebrating "Fruit Week," says Trade Commissioner Sanger in a dispatch to the Department of Commerce. A proposal has been made by the commissioner of railways to the various fruit associations for a series of the "weeks," so successfully inaugurated in this country, with a view to increasing the demand for soft, citrus, and dried fruits. When a huge surplus of dried fruits in this country was quickly turned into a shortage by popularizing the use of raisin bread during a "Raisin Week," the Australian fruit growers evidently thought it worth while to try the stunt down there.

First Direct Shipment of American Flour to Amoy Competes with Shanghai

American flour, for the first time in commerce, has been shipped direct to Amoy, China, when the S. S. Pomona recently arrived at that Chinese port with 25,000 sacks. This flour is competing with the product of Shanghai mills, and Consul Carlin informs the Department of Commerce that this may result in Amoy being made a regular port of call. American flour has always been greatly esteemed in other parts of China, and Amoy will require each year about 800,000 bags.

Excellent Malaga Almond Crop Promised

Jordan and Valencia almonds from Malaga, Spain, will be plentiful this year, according to trade reports just received from Consul Gaston Smith at the Department of Commerce, Washington. It is estimated that the present production will be greater than the last year's by from 25 per cent to 50 per cent, and the maturity about a week or two earlier. The grade or quality will be on a par with last year's crop with possibly a slight per cent more of the large sized nuts.

Priees will probably be somewhat less than those of last year but it is yet too early to predict—much will depend upon the production of other Mediterranean countries and other factors. Some 1,701,181 lbs. of Jordans and 2,583,357 lbs. of Valencias were exported to the United States last year and a total of 896,657 lbs. from January 1 to June 30, 1922.

Salad and Cooking Oil from Beans

The growing use of vegetable oils for salads and cooking purposes has prompted the manufacture of a highly refined bean oil at Dairen, Manchuria, and soon the European and Japanese markets will be supplied with this new product, Consul General Pontius states in a dispatch to the Department of Commerce. The product is sold in bottles, tins, or barrels, according to the market needs.

Norwegian "Sardines" Likely to Be Herring This Season

During the week ending July 22 and for the first time this season, the Norwegian sardine and fish canneries are working normal forces, Consul George Nicolas Ifft informs the canned foods unit of the Department of Commerce. Bristling, which are packed as sardines in Norway, are still very few, but during that week from 26,000 to 36,000 quarts of mossa and small herring were delivered daily to the factories at Bergen, while at Stavanger an average of 145,000 quarts of mossa, small herring, and bristling were received per day by the factories there—about 20 per cent being genuine bristling which constitute the raw material for the best Norwegian sardines.

Australian Butter Bringing Big Prices in France

The Australian Producers Cooperative Federation has just established a selling agency in France, the demand for Australian unsalted butter in that country having increased tremendously, according to R. H. Fisher, of the American Consulate at Sydney, in a report to the Department of Commerce. Australian butter in France is reported to be realizing on the average of fifteen shillings per cwt. above rates ruling in the United Kingdom, and while it is impossible to estimate the exact demand in France for Australasian butter it is put down roughly at 10,000 to 15,000 boxes weekly from December to April.

Putting Up Peaches in Africa

Africa can no longer be called the "dark continent." The latest news is another canning factory for the Transvaal where everything from peanut oil to peaches will be put up for the delectation of the dusky inhabitants. Vice Consul Morton, Johannesburg, informs the Department of Commerce that the cannery is to be situated adjacent to a 3,000 acre farm containing 200,000 peach trees and a large number of pear and apple trees; it also produces tomatoes and peanuts. The cannery will have an output of 120 tons of fruit and vegetables daily.

Swiss Chocolate for Germans to Be Made In Germany

Forbidden importation into Germany, Swiss chocolate will be supplied to Germans through branch factories being erected in Germany, according to a statement received from Consul Haynes, Berne, by the Department of Commerce. When report became current of the proposed establishment of Swiss factories in Germany the French became alarmed, believing that the factories were leaving Switzerland and that chocolate which formerly entered France from Switzerland would thereafter come from Germany, but it is now believed that these fears are unfounded and that the chocolate produced by Swiss branches in Germany will be consumed in the Fatherland.

Candy Habit Seizes the Indo-Chinese

The candy "habit" among the Indo-Chinese has become so popular and the demand for "sweets" so widespread that Consul L. Smith, Saigon, has prepared a special report for the Department of Commerce in which he outlines the excellent opportunities existing there for the sale of American confectionery. The "sweet tooth" is chronic among the natives he states. In addition to eating raw sugar, he says that they consumed in 1921 over 47,000,000 francs worth of foreign sweets—China supplying 41,000,000 francs worth and Europe 6,000,000.

A. E. F. Leftovers Hurting American Reputation for Quality

American foodstuffs are getting a black eye in Poland on account of continued sales of old ex-army supplies left in Europe by the A. E. F., Consul General Kenna, Warsaw, informs the Department of Commerce. The stocks of American goods offered for sale are of a doubtful age and their quality is now probably so inferior to the standard grade that they are poor examples of the product they represent. The Consul suggests some system of dating which would differentiate between articles of current production and old army stocks still being jobbed about Europe and should facilitate future sales by presenting a tangible reason for the higher prices asked for the new goods. The retail price of these stocks in the Polish market is ordinarily below the retail price for the same article in this country.

Garlic a Plenty Heading This Way

Over 20,000 tons of garlic have just been harvested in Southern Italy. This is a large yield, and prices have been forced down to about \$2.95 per hundred pounds for the lower grades and \$3.18 for the better grades. Two or three million pounds of the hardy bulbs will shortly be seeking admission into this country, reports Consul Byington, Naples, to the Department of Commerce.

Look for Large Canned Fruit Imports

According to a dispatch from Antwerp received by the canned foods unit of the Department of Commerce, European crops of peaches and apricots are below normal and next winter will see large imports of canned peaches and apricots. No demand exists at present for canned fruits owing to the plentiful supply of the fresh article.

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Association and Convention Calendar

American Association Creamery Butter Manufacturers, Continental and Commercial Bank Building, Chicago. Annual meeting at La Salle Hotel, Chicago, Nov. 28. Secretary, George L. McKay.

American Bakers' Association, 1135 Fullerton avenue, Chicago. Business manager, H. E. Barnard.

American Chemical Society, 1709 G street, N. W., Washington, D. C. Secretary, Charles L. Parsons.

American Corn Millers' Federation, 332 South La Salle street, Chicago. Convention in November. Secretary, T. M. Chivington.

American Dietetic Association, Washington, D. C. Annual meeting at New Willard Hotel, Washington, Oct. 16 to 18.

American Macaroni Manufacturers' Association, 26 Front street, Brooklyn. Secretary, Edward Z. Vermyle.

American Manufacturers' Association of Products from Corn, 208 South La Salle street, Chicago. Annual meeting early in the year. Secretary, Dr. W. P. Cutler.

American Specialty Manufacturers' Association, 53 Park place, New York. Next meeting in Atlantic City November 15, 16 and 17. Secretary, H. F. Thunhorst.

Association of Operative Millers, Postal Telegraph Building, Kansas City, Mo. Next convention, June 4 to 9, 1923. Secretary, M. F. Dillon.

Biscuit and Cracker Manufacturers' Association of America, 90 West Broadway, New York. Convention date to be set by board of directors. Secretary, R. T. Stokes.

Flavoring Extract Manufacturers' Association of the United States. Date of next convention to be set in January. Secretary, Gordon M. Day, Day-Bergwall Co., Milwaukee, Wis.

Institute of American Meat Packers, 509 South Wabash avenue, Chicago. Secretary, W. W. Woods.

National Coffee Roasters Association, 64 Water street, New York. Convention in New Orleans, Nov. 22 to 24. Manager, Felix Coste.

National Association of Ice Cream Manufacturers, 155 North Clark street, Chicago. Annual convention at Hotel Hollenden, Cleveland, Ohio, Oct. 16 to 18. Secretary, N. Lowenstein.

National Canners' Association, 1739 H street, N. W., Washington, D. C. Next convention at Atlantic City, N. J., the week of January 22, 1923. Secretary, Frank E. Gorrell.

National Confectioners' Association, 11 West Washington street, Chicago. Convention at Atlantic City, May 23, 24 and 25, 1923. Secretary, Walter C. Hughes.

National Dairy Council, 910 South Michigan avenue, Chicago, Ill. Annual meeting, Dec. 7, Chicago. National Dairy Show, Oct. 7 to 14, St. Paul. Secretary, M. O. Maughan.

National Dairy Union, 630 Louisiana avenue, Washington, D. C. Secretary, A. M. Loomis.

National Food Brokers Association, 326 West Madison street, Chicago. Convention to be held simultaneously with conventions of National Canners' Association and the Canning Machinery and Supplies Association, at Atlantic City, N. J., the week of January 22, 1923. Secretary, Paul Fishback.

National Macaroni Manufacturers' Association, Braidwood, Ill. Next meeting, June, 1923. Secretary, M. J. Donna.

National Milk Producers' Federation, 1731 I street, N. W., Washington, D. C. Annual convention in November. Secretary, Charles W. Holman.

National Paper Box Manufacturers' Association, 112 North Broad street, Philadelphia. Annual convention, May 9 to 11, 1923, Claypool Hotel, Indianapolis, Ind. Secretary, William W. Baird.

National Pickle Packers' Association, 326 West Madison street, Chicago. Meets with National Canners' Association at Atlantic City, January 22, 1923. Secretary, F. A. Vickers.

Rice Millers' Association, 609 Maison Blanche Annex, New Orleans, La. Convention, May, 31, 1923. Secretary, F. B. Wise.

Cane Sugar Refining Low in 1921

The Department of Commerce announces that the census reports show a considerable decrease in activities of the establishments engaged in the refining of cane sugar during the year 1921 as compared with 1919.

In 1921, there were 21 establishments reported and the total value of their products amounted to \$469,211,512, as compared with 20 establishments and the total value of products of \$730,986,706 in 1919. The decrease in the total value of products was \$261,775,194, or 35.8 per cent. The statistics cover the refining of raw cane sugar, mostly imported, and do not include establishments engaged in the manufacture of sugar, sirup, and molasses from domestic-grown cane.

The decrease in the value of products has been accompanied by decreases in the number of persons employed; in the total amount paid for salaries and wages during the year; and in the cost of materials used. Of the 21 establishments reported for 1921, 5 are located in New York; 4 in Louisiana; 3 in Pennsylvania; 2 each in California, Massachusetts, and New Jersey; and 1 each in Georgia, Michigan and Texas. New York, the leading state in the industry in 1921, produced 35.5 per cent of the total value of products in that year.

In March, the month of maximum employment 18,192 wage earners were reported and in January, the month of minimum employment, 13,345, the minimum representing 73.4 per cent of the month of maximum employment. A classification of wage earners shows that 2,721 or 17.4 per cent, were employed in establishments operating 48 hours per week; 2,466, or 15.7 per cent, 54 hours per week; 3,989, or 25.5 per cent, 60 hours per week; and 6,473, or 41.4 per cent, were employed in establishments where the prevailing hours of labor were over 60 hours per week.

The combined output of all establishments was approximately 65 per cent of the maximum capacity, based upon a demand requiring full running time. The percentage of output of individual establishments ranged from 46 to 90, with the exception of one establishment which reported 100 per cent for the year.

Manufacture of Chocolate and Cocoa Products Declines

The Department of Commerce announces that the census reports show a considerable decrease in the activities of the establishments engaged in the manufacture of chocolate and cocoa products, exclusive of confectionery, during the year 1921, as compared with 1919, although there is a slight increase in the number of establishments. In 1921 there were 50 establishments reported, with a total value of products of \$77,930,711, as compared with 48 establishments with a total value of products of \$139,258,296 in 1919. The decrease in the total value of products was 44 per cent.

The decrease in the value of products has been accompanied by a corresponding decrease in the number of persons employed, in the total amount paid for salaries and wages during the year, and in the cost of materials used. Of the 50 establishments reported for 1921, 13 were located in New York, 9 each in Massachusetts and New Jersey; 8 in Pennsylvania; 1 in California; 2 in Ohio; and one each in Connecticut, Illinois, Vermont, Washington and Wisconsin.

Pennsylvania, the leading state in the industry in 1921, produced 39.9 per cent of the total value of products in that year.

In October, the month of maximum employment, 7,767 wage earners were reported, and in July, the month of minimum employment, 5,116; the minimum representing 65.9 per cent of the month of maximum employment. The average number employed during the year was 6,278 in 1921 as compared with 10,287 in 1919. A classification with reference to the prevailing hours of labor in the establishments in which employed shows that for 1,363, or 21.7 per cent of the total (average) number of wage-earners, the prevailing hours were 48 hours per week; for 2,911, or 46.4 per cent between 48 and 54; and for 1,190, or 19 per cent, between 54 and 60.

The returns indicate that the combined output of all establishments was approximately 80 per cent of the maximum capacity, based upon a demand requiring full running time. The percentage of output for individual establishments ranged from 10 to 100 per cent of their maximum capacity.

Smyrna Disaster Increases Demand Here for Raisins

Although two or three shipments of raisins were made prior to the fire in Smyrna, according to a report from the American commercial attache at Athens, no figs or currants have been shipped. Fire has destroyed the fruit packing establishments and as all draft animals have been commandeered by the army, the movement of the usual fruit supply into Smyrna is prevented. In addition, the destruction of bridges, tunnels and cars and the flight of workers who handled export freight, may cause in a loss of approximately 70 per cent of the fig crop and injury to the remainder.

In consequence of this situation in Smyrna, the Sun-Maid Raisin Growers' of California, report an unprecedented flood of orders, which will probably successfully dispose of the unusually large tonnage of raisins expected this year. It is stated that the company is sold out of all bleached raisins, both sulphur and soda, as well as all baker's Thompsons and has on file orders for 230,000 cases.

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Won't Standardize Baking Powder Cans

Decided objection to the standardization of baking powder containers is expressed by the Calumet Baking Powder Company, Chicago, which was recently approached with the suggestion of standardization of their packing by the standard container committee of the American Specialty Manufacturer's Association. The reply of the Calumet Company, which claims to produce one-third of the baking powder of the country, was made to the committee by General Manager K. K. Bell.

"Our experience," said Mr. Bell, "has proven that the average yearly consumption per family varies too widely in different sections to favor the idea of uniform packages throughout the United States. In the South and West, where the consumption runs from ten to twenty pounds per family, it naturally follows that baking powder is packed in large containers, while in the Eastern States the average consumption runs so much less that a smaller container is desirable.

"Another factor which necessarily must be considered is the wide range of the keeping qualities of the various types of baking powder. You can readily see that it would be an injustice to ask a manufacturer of a type such as we produce to impose the additional cost of small containers.

"During the war our firm, along with the other principal manufacturers, met repeatedly and discussed the question of standardization. At that time it was the consensus of opinion that baking powder (with the exception of the cream of tartar type) should be packed in standard tins—quarters, halves and pounds.

"Since the war a lot of these same manufacturers have changed the sizes of their containers, while we are still using the standard adopted at that time.

"Inasmuch as we put up approximately one-third of the total baking powder consumed we believe that our experience amply fits us to advise against the proposed standards. At any rate, we could not, so far as our product goes, approve or comply with such a suggestion. Our present plan is meeting with perfect success.

"Frankly, we feel that before any efforts are made looking toward the standardization of packing it would be for better to take steps to standardize the tin containers, the wide range of which now tends toward confusion and particularly toward deception of the consumer. However, we have little hope that anything can be accomplished along either line."

A. C. Monagle to Become Sales Manager of Royal Baking Powder Company

The Royal Baking Powder Company, through F. D. Bristley, vice president and director in charge of sales, announces the appointment of A. C. Monagle as sales manager for the United States and Canada, effective November 1.

Mr. Monagle has filled a similar position with the Franco-American Food Company and Runkel Bros., Inc., prior to which time he had had considerable experience as a salesman and as New

York district sales agent. He also served for two years as secretary of the American Specialty Manufacturers' Association.

Aside from his sales and executive ability, Mr. Monagle is a well known speaker and well liked by the wholesale and retail trade.

World's Production of Sugar for 1922 Is 17,000,000 Tons

The revised estimate of world production of sugar for 1922, is 1,600,000 tons more than the earlier estimate, and totals about 17,000,000 tons, says the Food-stuffs Division of the Bureau of Foreign and Domestic Commerce. The abnormal surplus of Cuban sugar, existing last January has apparently been absorbed, the report continues, and in addition, the normal amount of new Cuban crop has been taken. The increase in the revised estimate of world production of sugar was made largely because of the unexpected size of the Cuban crop. But this year's consumption also has exceeded all predictions, both in the United States and in Europe and even with the devised crop figures for 1921 to 1922, the carry over for 1922 will be not far from normal.

The rapid distribution of the Cuban surplus since the beginning of the year, says the report, is shown by the export figures for the first seven months of 1922 and the United States exports for the same period. Cuba exported 4,000,000 tons, including practically all its old-crop sugar, as compared with 1,800,000 tons for the first seven months of 1921. Of this the United States imported 3,000,000 tons and Europe 800,000 tons, as compared with corresponding figures for 1921 of 1,540,000 and 160,000 tons. The United States exported 755,000 tons of refined sugar in the first seven months of 1922 (85 per cent to Europe) and only 256,000 tons in the corresponding period of 1921.

Maple Sugar and Sirup Production Increases

Production of maple sugar and sirup in the thirteen important producing States totaled 31,806,000 pounds, the largest in the past four years, according to the United States Department of Agriculture. The production this spring was 53 per cent greater than in 1921. The maple sugar produced was 5,321,000 pounds. These states, according to the 1919 figures of the Bureau of Census, produced 98.7 per cent of the maple sugar and sirup of the United States. They are: Maine, New Hampshire, Vermont, Massachusetts, Connecticut, New York, Pennsylvania, Maryland, West Virginia, Ohio, Indiana, Michigan and Wisconsin. Of these Vermont was the largest producer with 11,671,000 pounds, and New York was second with a production of 9,865,000 pounds.

Not only was the average quality of the product higher than in former years, but the total production of 31,806,000 pounds compared with 21,178,000 pounds in 1921, although the number of trees tapped increased only from 15,219,000 to 16,385,000. Most of the increase was in sirup production.

Chain Stores Low Cost Distributors

"The prevailing opinion seems to be, and the average trade press contends, that the chain store grocers' cost of doing business is as large as that of other channels of distribution and therefore the consumer is saved only a very small percentage in buying in the chain store," said Alfred H. Beckman, secretary and manager of the National Chain Store Grocers' Association, in making his report before the association's recent convention.

"In the face of this," Mr. Beckman pointed out, "the fact remains that the wholesale grocers' cost ranges from 8¾ per cent to 12 per cent and the so-called retail grocers' from 16 per cent to 20 per cent. The chain store grocer organization performs the function of a wholesaler in buying and warehousing and that of a retailer in selling to the consumer, and in this dual capacity the cost of operation, including executive and every possible expense, ranges from 13.25 per cent to 16.25 per cent.

"Some trade papers," he continued, "have issued erroneous statements, claiming that the saving to the consumer in dealing with a chain store grocer does not exceed 2½ per cent, when the truth is that the saving is more nearly 15 per cent. Your industry," said Mr. Beckman, "has proven an evolution in merchandising and so thoroughly economical for the manufacturer and the consumer that it will require only a limited time to dispel what now seems to be hostile influences."

Mr. Beckman pointed out that there are about 350,000 retail grocers, about 4,000 wholesale grocers and in competition about 30,000 chain stores

Course in Wholesaling at New York University

A course in wholesale organization and management is being given this fall by the Department of Business Management at New York University. The course will be conducted by H. M. Foster, secretary and general manager of the New York Wholesale Grocers' Association.

The course is designed not only to clarify the public mind as to the place of the wholesaler in distribution, but also to make a detailed study of the latest methods of wholesale merchandising, financing, accounting, buying and selling. The first part of the course deals with the wholesaler; what he does; what he receives for what he does; and the types of wholesale organization. It also takes up the problems of credit, collection and discount, management, direct selling, buying of nationally advertised goods, price maintenance, radius of territory, sources of supply, market knowledge, stock and stock keeping, salesmen's compensation, work of the sales manager, advertising, perpetual inventories and the salesman as an educator of the retailer.

In the second part, beginning in February, the topics include accounting, cost of doing business, records, the packing room, returned goods, broken packages, services, financing new retailers, advantages and disadvantages of retailers buying direct from the manufacturer, markets, trade routes and channels, trade factors, trade relations, trade associations, relation of the chain store and mail order houses to the wholesaler, legislation, the work of the Federal Trade Commission and price agreements.

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Corn Sirup Output Lower in 1921

Considerable Decrease in the Activities of Manufacturers Reported for That Year

The Department of Commerce announces that the census reports show considerable decrease in the activities of the establishments engaged in the manufacture of corn sirup (glucose) and starch during 1921 as compared with the year 1919. There were 39 establishments reported for 1921 and the total value of their products amounted to \$80,063,149 as compared with 56 establishments for 1919 with a total value of products of \$186,256,260. The decrease in total value of products was 57.0 per cent.

These figures do not include the value of starches manufactured in establishments engaged primarily in other industries, as the data for these starches have not been compiled. The figures for them, however, will be included in a subsequent report.

The decrease in the value of products has been accompanied by corresponding decreases in the number of persons employed and in the total amount paid in salaries and wages during the year and in the cost of material used. Of the 39 establishments reporting for 1921, 19 are located in Maine, 4 each in Illinois and Iowa, 3 in Indiana, 2 in Massachusetts, 1 each in Florida, Michigan, Missouri, Nebraska, New Jersey, New York, and Ohio. The four establishments located in Illinois report more than 60 per cent of the value of products returned for the year.

The decrease in number of establishments is accounted for by 14 idle establishments, one out of business and two that had changed their products to such an extent that they were assigned to another industry in 1921. The com-

bined value of products of these establishments in 1919 amounted to \$1,028,000, almost half of which was returned by one establishment classified as engaged in the production of starch in 1919 but had changed its principal product to chemicals in 1921.

There was but slight fluctuation in the monthly employment of wage earners in 1921. In November, the month of maximum employment, 6,665 wage earners were reported, and in January, the month of minimum employment, 4,981—the minimum representing 74.7 per cent of the month of maximum employment. A classification of the wage earners shows that 3,841 or 62.6 per cent were employed in establishments where the prevailing hours of labor per week were 48 and under, 244 or 4.0 per cent at 51; 745 or 12.1 per cent between 54 and 60; 577 or 9.4 per cent at 60 and 733 or 11.9 per cent for 60 and over.

The returns indicate that the combined output of all establishments was only approximately 47 per cent of the maximum capacity, based upon a demand requiring full running time. The percentage of output for individual establishments ranged from 10 to 100 per cent of their maximum capacity.

Canners Are to Meet at Atlantic City January 22

Atlantic City has been selected for the sixteenth annual convention of the National Canners' Association, which will be held during the week of Jan. 22, 1923. The selection was made by the Location Committee, which is composed of President Moore of the National Canners Association and the presidents of the two associations holding their conventions simultaneously with the canners; President Engelhart of the Canning Machinery and Supplies Association and President Ford of the National Food Brokers' Association. It is stated that the Atlantic City Hotel Men's Association has promised to have 5,000 rooms available and that hotel rates will show reductions from those of last year. It is expected that about 40 hotels will be open.

Germany Importing Canned Milk

With the exception of canned milk, Germany is not a very satisfactory market for canned goods of any description, according to a report from a special representative of the United States Department of Commerce. Since July 10, this year, importation of California sirup fruits and Hawaiian pineapple has been permitted by the German government, but a duty of 75 gold marks per 100 kg. is imposed. Canned salmon is also subjected to this duty. No canned vegetables are being imported at present, the trade relying almost entirely upon German production.

Milk, however, is an exception to the stagnation in the imported canned goods trade. Because of the reduced supply of fresh milk, restrictions that existed before the war on imports of preserved milk have been lifted. The latest German report on cattle not only shows a sharp decline in numbers from 1913, using the present territory of Germany for comparison, but there has been a marked decline in the condition of the cattle. Recently it has been impossible to import the large quantities of oil cake used before the war for the sustenance of the cattle and the protracted drouth in the summer of 1921, which continued throughout the grazing season, was detrimental to animal husbandry in all parts of the country, and caused a considerable decrease in the milk supply.

The demand for canned milk is satisfied with a milk carrying about 8 per cent butter fat. Unsweetened milk is preferred and despite the high dollar exchange can be purchased as cheaply by Germany in the United States as in any other producing country. The Swiss sweetened condensed milk is considered too expensive and the Dutch brands made of skim milk, which are popular in England among classes of limited purchasing power, are not liked by the German consumer.

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Volume XVII

The American Food Journal

Number 11

The National Magazine of the Food Trades

Established 1906

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THE EDITOR'S PAGE

In This Issue

NATURALLY, we are gratified at the interest displayed in the article, "What the Baking Industry Has Accomplished," which appeared in the October issue of The American Food Journal. This interest merely whets our ambition, however, to make of this series as a whole a definite contribution to the history of American food. Therefore, in the present issue the editors unite in the hope that the article, "What the Meat Industry Has Accomplished," will not alone be of interest to those engaged in that particular section of the food field, but that it will also strengthen our efforts toward bringing about ever increasing team play among food manufacturers as a group. The food industry is peculiarly entitled to adopt as its motto:

"All are needed by each one,
Nothing is fair or good alone."

THE food manufacturer who wishes to keep abreast of the times, and what food manufacturer does not, will be eager to read what so great an authority as Dr. Henry C. Sherman of Columbia University has to say on the service performed by the research man in the field of food manufacture. Definite suggestions from Dr. Sherman as to how the food manufacturer can best develop research within his plant appear in this issue and it goes without saying are worth listening to. Dr. Sherman's paper is the first of a series on this interesting subject, each one by an authority of national significance. Dr. E. V. McCollum of Johns Hopkins University, Baltimore, will contribute an article to the December issue.

MANY food manufacturers are availing themselves of the services of women trained in home economics and are finding that these women have much to offer. The ability to relate problems and subject matter to experiences of actual women is of great service in working out a sound campaign of selling and manufacturers who employ home economics women are for the most part convinced of the value of such cooperation. There may be others who are asking themselves: "What shall I gain from such a development in my business?" To which every group they belong, food manufacturers will wish to read Miss Keown's and Miss Watson's contributions to "The Conference Table." Miss Keown, as chairman of the first committee of the American Home Economics Association to consider the problem of home economics in business, opens for the Conference Table a symposium to which both manufacturers and home economics women will be asked to contribute. Miss Watson, who makes the

first contribution, is in charge of the educational department of the Royal Baking Powder Company, going to that important post after having been Assistant Instructor in Foods and Cookery, Teachers College, Columbia University.

THE progressive food manufacturer is ever on the alert for ideas that will help him in his fight for sanitary conditions in his field. The articles on Food Poisoning and on Botulism will be of special interest in this regard. During a recent interview between Dr. W. D. Bigelow, Chief Chemist of the National Canners Association and one of the editors of The American Food Journal, Dr. Bigelow called attention to the fact that food manufacturers may render a real service to American housewives by emphasizing the need for great care in the use of the open bath in canning vegetables. Dr. Bigelow is of the opinion that only in the case of tomatoes is this safe.

PERSONS engaged in the food field know that they need the inspiration that comes from contact with others who are laboring in this same field. The American Food Journal takes great pains to make its reports of conventions as full and as accurate as possible. Two conventions are reported in this issue, those of the Institute of American Meat Packers and the American Dietetic Association. Our calendar of conventions aims to keep our readers fully informed as to dates for coming conventions.

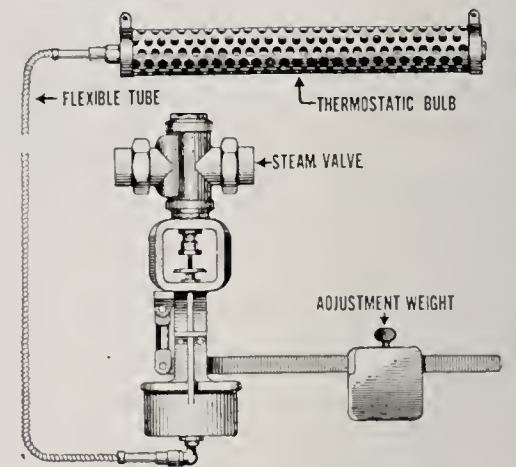
THERE is a fascination about the prevention of waste as well as in the effective utilization of by-products. Perhaps this is true of the food industry as in no other. All sorts of questions are involved, that of a sacred obligation not to waste any part of vitally necessary foodstuffs, the equitable distribution of time, labor, etc., being only a few. So the article on Salvaging Asparagus Waste, by H. D. Morgan, Ph.C., fits in with the determination of The American Food Journal to give its readers all possible suggestions as to conservation of food.

"YOUR new department of magazine digests is just what we busy people need. Will you please send me the addresses where I can purchase two of the magazines from which you quote in your September issue." Proof positive, such letters as the above that we are on the right track in our endeavors to act as a connecting link between our readers and practical information in matters relating to food.

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The Place of the Laboratory Man in the World of Food Economics

What the Food Chemist Has Done for the Consumer and What He Can Also Do for the Manufacturer

By H. C. SHERMAN

Professor of Food Chemistry, Columbia University

THE editor has asked me to speak about the place of the laboratory man in the world of food economics.

America is essentially a food producing country. Our food crops, even as they leave the farm, exceed in money value the total combined values of all other farm products and all the products of the forests, the mines and the sea. Many of our largest manufacturing interests are devoted primarily to the handling of food. Furthermore in this country, as in all others, food is the largest item in the cost of living of the great majority of people; in fact, the majority of people spend about as much for food as for everything else combined.

In recent years our conception of food values has grown and broadened. We know that the terms in which food values were discussed a dozen years ago are not adequate in themselves and that a description of food values in the older terms alone does not insure an adequate food supply. With the discovery of the vitamins and the growing recognition of the importance of the mineral elements in foods, and of the differences among proteins and the way in which some proteins supplement others, the knowledge of food values has grown to a point where we can now, for the first time, discuss nutritive requirements in chemical terms with reasonable confidence that we are taking account of all of the essential factors.

Use of Laboratory Animals

In the development of this newer knowledge of food values it has been necessary to devise methods involving the use of laboratory animals as a means of supplementing analytical work, and these animal feeding meth-

A New Series of Articles Begins in This Issue

THIS is the first of a series of articles by leading food scientists on "The Place of the Laboratory Man in the World of Food Economics." The first of the series by Dr. H. C. Sherman of Columbia University will be followed in the December issue by an article written by Dr. E. V. McCollum of Johns Hopkins University.

The American Food Journal has scheduled for publication in its December issue an unusually informative contribution to food literature by the Committee on Nutritional Problems of the American Public Health Association. The report was prepared by Dr. Sherman and other members of the committee who are C. E. A. Winslow, E. L. Fisk, I. Greenwald, and T. B. B. Jones.

ods have proven unexpectedly valuable in permitting us to study food values in the sense of the efficiency with which one food supplements another in nutrition and the effects on nutrition when a given food or combination of foods is fed continuously for a relatively long time.

By means of these animal feeding experiments, it is possible not only to go beyond what can be done with ordinary analytical methods in determining the adequacy of a food or diet, but it has also been possible to show by well-controlled laboratory experiments how a diet already adequate can be made of still higher nutritive value. For instance, in a recent series of ex-

periments certain families of laboratory rats have subsisted for no less than six generations on a uniform food mixture, certainly a sufficiently searching demonstration of the adequacy of the diet and one which could never have been made by ordinary analytical methods alone. At the same time it was shown that parallel families of rats from the same stock receiving the same diet, except that it was modified to contain a higher proportion of milk, have shown striking evidence of improved nutrition as indicated in the following effects: more rapid growth; more efficient growth (that is, a greater gain in weight for each 1,000 calories of food consumed); somewhat larger average size at all ages, though the difference in size was not striking; greater vigor as indicated by earlier maturity, larger capacity for reproduction, and greater success in rearing the young; and a lowering both of the infant mortality and the death rate after infancy, and this notwithstanding the fact that the females had borne and suckled more young.

Food Values Taught in Schools

In recognition of the great importance of food to health and its prominence in the cost of living, food values are now taught as part of the work in domestic science or home economics in practically all public schools; and the demands of consumers will, in future, be much less easily met by considerations of appearance and flavor alone and will be much more strongly influenced by knowledge of nutritive values, than in the past. And the ultimate authority in questions of nutritive value is, from now on, the laboratory, because, with the methods now developed for feeding laboratory animals through the entire life cycle and

even through successive generations, nutritive values can be studied more searchingly and more successfully than in any other way.

The service which the laboratory can thus render to the consumer is plain; how about its service to the producer.

The food industries are barely beginning to realize the ways in which the laboratory can serve them. Among the services which the laboratory can render are: analysis of the raw materials which they purchase, to be sure that the factory gets good value for the money spent and material of sufficiently uniform quality and composition with which to work; tests to control factory processes, both for the sake of economy of operation and quality of product; and tests of the finished foods, not only to insure that they always meet all legal and trade standards, but also that the manufacturer may have precise knowledge of the nutritive values of the foods themselves, both in terms of proteins, fats and carbohydrates and also vitamine values and relations to health when fed for a lifetime.

Food Industry Needs Chemists

This means that the food industry now needs the services of chemists, who are not only well trained in analytical methods, but also in physical chemistry, which plays such a prominent and rapidly growing part in factory control and in the conservation of the more delicate constituents of foods, and who have training also in the newer methods of food investigation which involve the use of laboratory animals in the testing of food values.

Necessarily this calls for longer and more expensive training than has sufficed to equip the food analyst of the past. Hence employers must expect to pay better salaries to their laboratory workers, if they are to get the benefit of the newer knowledge of food chemistry and nutrition. It is certainly much more economical to pay for this knowledge than to try to get along without it.

In some of our universities, graduate students are now receiving training which will equip them to render such services as are here described. The food manufacturer whose operations are of sufficient magnitude to

permit him to employ such workers in his own laboratory will find that, when their university training has been supplemented by practical experience, their work will contribute both to the increase of efficiency in production and enhancement of quality in his products and also to the guidance of policy in the development of a food industry to meet the changes in demand which are bound to come with increasing knowledge of nutrition and as the result of more training on the part of consumers. The undivided service of a laboratory thus manned and serving a single manufacturer will bring the manufacturer certain individual advantages, which he could hardly expect to get in any other way; certain other advantages are secured through research laboratories supported by organizations of manufacturers; and still others are best obtained by the support of research along specific lines through universities, which already have the necessary equipment and in which the investigator has the advantage of intimate conference with experts in all the related sciences.

The Future of Wheat in America

Gradual Decrease in Per Capita Production Leads to Conclusion That New Sources of Supply Must Be Sought

ONE of the outstanding facts facing the American wheat grower is that while population and per capita consumption of wheat in the United States have steadily increased, there has been a gradual decrease in per capita production, according to the United States Department of Agriculture. Wheat is a world commodity and the interplay of economic forces both of national and international character must be carefully considered to forecast the future.

The economic situation of the wheat crop, production and marketing, from seeding to international trade, is presented in the 1921 yearbook of the Department of Agriculture. This discussion is the result of combined research and study by a number of the nation's leading agronomists and agricultural economists connected with the department. It is illustrated with numerous maps and charts so that it is clear to those without special training in agricultural economics.

Third of Farmers Grow Wheat

Among the significant facts presented it is shown that nearly a third of the farmers in the United States now grow wheat. In some areas more than 80 per cent of farmers are engaged in wheat growing. Only corn and hay exceed this bread crop in acreage occupied, and normally only these two crops and cotton exceed wheat in value. In leading wheat areas whatever af-

fects yields, cost of production or the price, not only affects the welfare of all the farmers who grow the crop, but the whole community. Similarly the wheat crop as a whole has much to do with the prosperity of the Nation, because the grain enters into foreign trade to a greater extent than any other crop except cotton.

This country has exported a surplus in every year of its history since colonial times with the exception of 1836, besides keeping pace with an ever-increasing demand at home. During the past 20 years, however, the volume of exports has been decreasing, except under the artificial stimulation of the recent war period. Wheat production has been increasing less rapidly than population, and this tendency will probably continue, at least until we reach the point where we consume practically all we produce. Because of improvements in milling processes which make bread more attractive, because of increasing prosperity, and because of the increasing proportion of our population in cities, the per capita consumption of wheat has increased in the United States for the past 80 years.

City Dwellers Eat Most Wheat

It is certain that city dwellers eat more wheat per capita than those who live in villages and in the country. There are a number of reasons for this—the lack of gardens in cities, the comparative cheapness of bread, and

the fact that no home cooking is required. The fact that the trend of population movement is toward the cities should have a bearing on the future consumption of bread.

How much wheat will we eat if we can get all we want?—is asked. Before 1850, the per capita consumption in this country was 3.8 bushels; from 1875 to 1884 it was 4.9 bushels; and from 1895 to 1914 it was 5.6 bushels. The rising trend was interrupted by the world war, but department authorities believe it has been resumed. How much longer will it continue? In Belgium and France consumption has reached eight bushels per year per person.

If we are to increase our bread ration to any great extent we must grow more wheat, the department says. We did grow more during the war, but the increase was partly at the expense of well-balanced rotations and other principles of sound farming. As wheat prices advance, concludes the department, "production can be increased through the use of more fertilizer and the farming of less productive land. As production and consumption tend to become equal new sources of supply must be sought in order to feed the increasing population. The needed supply may be grown at home or imported from Canada, Argentina, and other countries."

What the Meat Industry Has Accomplished

Organization of Packers Entering Upon a Further Development as "Research Institute and Educational Institution"

By WINIFRED STUART GIBBS
Associate Editor, The American Food Journal

PRIOR to 1919, according to Thomas E. Wilson, first president of the Institute of American Meat Packers, the meat industry was made up of "mere aggregations or groups of companies."

The men who had founded and carried forward the old American Meat Packers' Association were the first to establish industrial acquaintance in their field and it was their efforts that made possible the present organization, known as the Institute of American Meat Packers. The members of the old association realized that in the year 1919 the industry was entering another stage of its development. They felt, according to Mr. Wilson, "That unprecedented events and conditions called for a more elaborated organization. They recognized the need of such cooperation as an Institute could afford and inspire."

Henceforth the purpose of the meat industry was to be the one made famous by D'Artagnan, "All for one and one for all!"

Organizing the Institute of American Meat Packers

Building on the old association, the Institute of American Meat Packers was organized at Atlantic City in 1919 for the purpose of developing a great national institution. "Big," "medium" and "little" packers joined in making constructive plans, which should unite the producer, packer and distributor in cooperative effort to better conditions for everybody, including the consumer.

Objects of the Organization

The Institute of American Meat Packers is an incorporated, national organization, composed of more than 265 packers located throughout the United States and Canada and the avowed objects of organization are:

a—To secure cooperation among the meat packers of the United States in lawfully furthering and protecting the interests and general welfare of the industry;

b—To afford a means of cooperation with the federal and state governments in all matters of general concern to the industry;

c—To promote and foster domestic and foreign trade in American meat products;

d—To promote the mutual improvement of its members and the study of arts and sciences connected with the meat-packing industry;

e—To inform and interest the American public as to the economic worth of the meat-packing industry;

f—To encourage cooperation with livestock producers and distributors of meat-food products.



Charles E. Herrick of the Brennan Packing Company, newly elected president of the Institute of American Meat Packers.



W. W. Woods, secretary of the Institute, who has done conspicuously successful work in charge of the organization's public relations.

Working Plan of the Institute

The Institute functions through the following committees;

Committee on Bruised and Other Live-Stock Shipping Losses endeavors to reduce the tremendous losses resulting from the improper handling of animals between producer and packing houses. The Institute is represented on 27 local sub-committees located throughout the United States. The committee has prepared, printed and distributed thousands of placards urging more humane treatment of animals, and has prepared and distributed thousands of illustrated booklets designed to educate the shipper and thus avoid much of the loss now encountered.

Committee on the Eradication of Live-Stock Diseases closely cooperates with producers and government representatives in waging a fight against preventable diseases. Statistical reports are gathered and the information summarized for use of government authorities engaged in the work of disease eradication.

Committee on Foreign Relations and trade is at all times alert to protect the foreign trade outlet of the industry.

Advice relative to any foreign trade question is freely given, and reports gathered from various sources keep exporting members fully informed on the situation in various countries.

This committee recently prepared a booklet on Foreign Trade Term Definitions which has been accepted as the standard work of its kind. Thousands of copies have been distributed throughout the world and press reports on file indicate the value of the work to foreign buyers.

Committee on Industrial Relations endeavors to answer inquiries relative to matters pertaining to the relation between employer and employee. Reports, press articles and publications are kept on file so that information on any subject of this character may be furnished upon request.

Committee on Local Transportation is prepared to furnish information relative to trucking, hauling and delivery problems. Cost statistics are outlined and every member is allowed to benefit from the experiences of those who have given this subject much thought and consideration.

Committee on Packing House Practice will furnish information on any matter of interest to the operating end of the business. Tests are outlined, recipes furnished, appliances examined, suggestions for preventing losses made, and, generally speaking, any member benefits by having placed at his disposal the best talent in the operating division of the packing industry.

Committee on Public Relations endeavors to answer fully any unfair or adverse criticism of the packing industry.

APPETIZING FACTS ABOUT MEAT

Meat may be served in many popular and attractive forms
Broiled or Fried - Stewed or Roasted - Soup or Sandwiches



To please the appetite
Any time of day



To suit the pocketbook
On all occasions

"THEY STICK TO THE RIBS"
CHEAP CUTS ARE AMONG THE MOST NUTRITIOUS

Government inspected meats are appetizing and healthful

FIND THE MARK OF THIS INSPECTION

This and other illustrations on pages 12 and 13 are reproductions of posters designed by the U. S. Department of Agriculture to promote the consumption of meat.

Advertisers who mis-state facts relating to meat products have their attention called to the facts, and the committee endeavors in every legitimate way to place the industry before the public in the proper light.

Constructive facts concerning the cheap, efficient service of the packing industry are brought to the attention of millions of consumers at frequent intervals. The market factors underlying wholesale meat prices are explained, whether the prices be high or low.

This committee prepares and releases a monthly report on the meat and live-stock situation throughout the country and this report is accepted as official by all press associations.

Any member is at liberty and is requested to bring to the attention of this committee any inquiry or any statement which requires attention.

Committee on Standardized Cost Accounting has completed three parts of the only packers' standardized cost accounting system in the world. These are as follows:

Part 1—The Theory of Packing House Accounting.

Part 2—Accounting Instructions on the Cattle Business.

Part 3—Accounting Instructions on the Hog Business.

These are furnished gratis to members, and requests have been received from all parts of the world for these booklets.

This committee with its personnel of the best accountants in the packing industry will answer any accounting inquiry pertaining to the business.

Committee to Confer with Live-Stock Producers cooperates with producer organizations in all matters of common interest. It has participated in the "Eat More Meat" campaign, the producers conferences on live-stock price fluctuations, and on many other subjects of importance.

Committee to Confer with Retail Dealers and Trade Associations works with the retail trade in an effort to help solve some of its problems. An expert is employed for the purpose of planning and assisting in the adoption of better retailing methods. Better merchandising, less waste, lower overhead and a better accounting system are some of the things which will be studied with a view of helping producers, consumers, retailers and packers.

Legal Committee, composed of the country's ablest attorneys advises on legal problems of interest to the industry. The membership is also kept informed on recent court decisions and pending legislation.

Traffic Committee, composed of eight of the best traffic men in the country is at the service of members. This committee cooperates with The National Industrial Traffic League and keeps the membership posted on traffic matters. Decisions of state and interstate commissions are digested; opinions furnished inquiring members; and active participation in cases of national importance is undertaken. Among the important subjects handled by this committee may be mentioned the following:

- a—Defeating the attempted increase in demurrage charges.
- b—Obtaining coal cars for packers' loading.
- c—Getting cancellation of order preventing packers' loading railroad-owned refrigerator cars.
- d—Seeking a reduction in the present double deck sheep minimum.
- e—Getting more prompt handling of live-stock shipments.
- f—Advocacy of the adoption of a better export bill of lading.
- g—Assistance in the more prompt adjustment of claims.

h—Answering numerous questions relating to traffic problems.

In addition to these the committees on Nutrition, Educational Plans, and several others, are doing splendid work.

Co-ordinate Activities

One of the busiest of the committees is that on Public Relations, directing as it does a series of twelve Meat Councils for local cooperative effort; public lectures, and work in home economics.

Pendleton Dudley, in charge of the Eastern division of the Institute of American Meat Packers and secretary of the Meat Council of New York, outlines the activities of the Meat Councils somewhat as follows:

"The Meat Councils were formed for the purpose of bettering the service of the meat industry. They aim among other things to relate the interests of the retail meat business to the industry in general. Included in the membership are retail and wholesale meat dealers, representatives of the Bureau of Markets of the U. S. Department of Agriculture, and others of similar interests."

Home Economics Work

Since home economics work is among the latest activities of the committees that have to do with public relations and educational work, we give in full the outline of field work as carried on by this department.

The department is in charge of Gudrun Carlson, home economics specialist, whose work includes the following activities:

Reviews and Compilation—Meat cookery, recipes, buying of meat, cuts, nutritive value of meat, experimental work.

Cooperation—Women's organizations, educational institutions, extension service, women's publications, commercial food departments.

Articles and Recipes—Newspapers, magazines, bulletins.

Bulletins—Work of department, institutional use of meat, special topics.

Lectures, Discussions—Clubs, associations, schools, colleges extension departments.

CONSUMERS: Eat Meat Freely; Let These Price Ratios Guide You~

Liberal Meat Consumption Encourages Continued and Ample Production of These Public Necessities~



Meats



Animal Products



Leather



Wool



Fertilizer



Many Other Products

APPROXIMATE RATIOS BETWEEN LIVESTOCK PRICES AND PRICES FOR RETAIL MEATS

Remember: Only from 50 to 75 per cent of the whole animal is meat. There is a lot of waste — but not too much.

Prices to producers are fully back to producers.

RETAIL CUT OF MEAT

	1913	1921
BEEF		
Prime	2.8	4.3
Choice	2.4	3.6
Good	1.8	2.3
Butt	1.3	1.6
PORK		
Prime	2.2	3.4
Choice	3.3	5.0
Ham (cured)	3.4	5.0
Lard	1.9	2.0
LAMB		
Loose (leg)	2.4	3.6

TO JUDGE MEAT PRICES

First, compare the price of meat with the price of other foodstuffs. Second, compare the price of meat with the price of other necessities. Note that prices for cheap cuts are smaller than for choice cuts.

With this poster the Department of Agriculture calls attention to the fact that meat makes cereals efficient. "Meat protein makes good the nutritive deficiencies of cereal protein," says the department, which adds that "the mixed animal and vegetable diet is the most efficient."

"SOME SOURCES OF MEAT"



Cottonseed • Meal • Oil • Meal • Tankage • Fish • Meal • and • Other • Factory • and • Mill • Products • are • Extensively • Used • in • Beef • Pork • and • Mutton • Production •



Livestock • Transform • Plant • and • Other • Products • Otherwise • Useless • as • Food • For • Man • Into • Nutritious • Palatable • Food •

"Eat meat for protein and iron," says the Department of Agriculture in amplification of this poster, adding that "meat is the most important source of protein and iron in the human dietary."

Food Classes and Study Clubs—Programs on food questions, marketing outlines, bibliographies, problems for study.

Demonstrations—Meat cutting, beef, etc., meat cookery.

Institutional Material—Hospitals, tea rooms and restaurants, dormitories, etc.

Motion Pictures—Meat industry, marketing, cuts of meat, meat cookery, demonstrations, exhibits.

Illustrative Material—Exhibits, charts, meat cuts, etc., diagrams, tables, nutritive value, etc.

Consultation—Publicity matter, home economics questions.

Experimentation and Research.

In a recent interview Miss Carlson said:

"The lines of development of the home economics work depend on public demand. We make as many contrasts as possible among all interested groups, including women's clubs, industrial plants and educational activities, both private and governmental."

Government Cooperation

At the recent convention of the Institute of American Meat Packers held in Chicago a resolution was adopted acknowledging a debt of gratitude to the Hon. Henry C. Wallace, under whose direction the United States Department of Agriculture has rendered, to quote: "inestimable service to the entire live stock industry by bringing to the attention of the public correct facts concerning American produced meats and meat food products."

Subject Matter

From the various bureaus of the Institute subject matter relating to the food value of meat, its place in the diet, its preparation, etc., is distributed. A partial bibliography follows:

"The Use of Meat," Digests of Scientific Literature and Original Articles on the Nutritive Value of Meat and Its Place in the Diet." Edited by E. B. Forbes, Specialist in Nutrition, Bureau of Public Relations Institute of American Meat Packers.

"Meat, a Brief Discussion of its Food Value, with Recipes for Preparing Economical and Palatable Meat Dishes."

"Meat, a Man's Food," reprinted from The Country Gentleman, July 1, 1922.

"Modern Methods in Delivery Service."

"Concerning Meat; Discussion of its

Value in the Diet and Its Relation to Health."

Plans for the Future

The plan submitted by Thomas E. Wilson for developing the Institute of American Meat Packers into an organization which ultimately "shall become a combined trade association, industrial museum, research institute and educational institution" was adopted by the seventeenth annual convention of the association held at Chicago, October 9-11.

It is intended to begin immediately the development of the plan on a moderate scale, fully realizing that the ultimate goal probably cannot be reached for a number of years. The report of the Institute Plan Committee, which was appointed to consider and act on the proposals submitted by Mr. Wilson, stated that the plan would be developed "as fast as circumstances permit and as slowly as wisdom demands." A sum of \$50,000 a year will be raised annually for the next three years, through individual voluntary subscriptions, to be spent on educational, research and service activities. The first thing to be undertaken will be the inauguration of practical and scientific research on packing house operations. At the same time, a series of

lectures will be instituted, primarily designed to give men engaged in the industry a general survey of the entire business, company operations and organization.

Those in charge of the execution of the plan that was adopted have before them as their goal, an organization which shall accomplish the following things:

I. As an educational institution it should do at least three things:

(a) Provide broad but specialized collegiate education for young men intending to enter the packing industry, just as the Colorado School of Mines provides such training for young men expecting to begin their work in the mining industry.

(b) Furnish special training to intermediate sub-executives (prospective departmental heads) of promise already engaged in the industry.

(c) Conduct a continuation school for plant employees and junior office help.

II. As a research institution, it should:

(a) Develop and systematize a body of scientific and practical data for the service of the whole community.

(b) Carry on agreed researches into new scientific and practical problems common to all packers, without infringing on research along individual lines being done by specific companies.

(c) Conduct experiments on the extension of products and reclamation of materials (except where such experiments would infringe on original work done by some individual company).

(d) Collate and disseminate information concerning discoveries and developments having relation to the packing industry, without invading material developed by particular companies.

(e) Conduct merchandising surveys and commercial research work.

(f) Discover waste and means of eliminating it.

(g) Test materials and equipment offered to the industry.

III. As a trade association, it should continue to do what the Institute is now doing in this direction.

IV. As an industrial museum, it should provide space for permanent exhibits of models showing modern packinghouse operations, specimens and processes; and it should rent out space for exhibits of materials of industrial value, and for a

A GREAT GOLDEN CROP - USE IT WISELY

1921 CORN CROP
Exceeded
3 BILLION BUSHELLS
or about
28 BUSHELLS
for
Every person

SAVE NATURE'S BOUNTY

You can't eat
28
BUSHELLS of CORN
But you can eat
THE MEAT
RAISED
on it

USE MORE MEAT
to utilize
the corn crop

3163063000 BUSHELLS
The 1921 crop
YOUR SHARE IS 28 BUSHELLS
Its food economics and common sense value is in
National Surplus. Meat consumption per person is 15
POUNDS below normal. PUT IT BACK. By adding to
the public welfare - you will share in the saving benefit.

USE MORE MEAT
to utilize
the corn crop

In the Home

In the Dinner Pail

In the School Lunch Box

On Your Travels

In the Restaurant

"Meat protein is of the highest nutritive value," says the Department of Agriculture. "A liberal proportion of meat in the diet serves as health insurance."



How the Institute of American Meat Packers aids the consumer is shown by this view of its exhibit at the Chicago Pageant of Progress last summer. "The meat problem is simply one of wise buying and economical cooking," said a large sign over the booth.

permanent exhibit of packinghouse machinery and supplies—a sort of scientific museum and centralized market place, a gigantic permanent show window, conveniently located (being at Chicago), where packers from all parts of the country may come and view samples before making purchases and installations.

Committee to Inaugurate Plan

Instruction in such an institution as that outlined would be divided naturally into instruction for young men intending to enter the packing industry and instruction for men already engaged in the packing industry but desirous of broadening their knowledge and of qualifying for more effective service.

In the latter case instruction probably would be given almost wholly through extension classes (probably at night, like most extension classes) by men actively engaged in the packing industry.

The convention appointed the following members of the Institute to serve on the plan commission, and they will have general supervision over the various committees that will administer the inauguration of the plan:

Thomas E. Wilson, chairman; Edward Morris, C. B. Heinemann, S. T. Nash, E. A. Cudahy, Jr., W. W. Woods, Arthur Meeker, J. C. Dodd, A. W. Cushman, M. D. Harding, G. F. Swift, Jr., Arthur Lowenstein, Oscar G. Mayer, W. D. Richardson, Walter H. Saunders, L. D. H. Weld, C. J. Faulkner.

Educational Proposals

The Committee on Educational Plans, Institute Plan Commission, has submitted the following statement to the chairman of the commission:

"The Committee on Educational Plans has held a number of meetings. So have its subcommittees. We also have conferred with educators, both professional and administrative.

"As the outcome of these activities we believe we have a beginning program to put before you that is not only definite but also well-reasoned.

"On suggestion of the sub-committee on training courses, of which Mr. L. D. H. Weld is chairman, we recommend that the Institute inaugurate a series of lectures designed primarily to give to men engaged in the packing business a general survey of the entire industry and of company organization and operations. These lectures should be of great value to departmental executives and sub-executives desirous of getting a well-articulated but perspective view of the industry and the business in which they are engaged. The committee believes that the lectures will also serve a missionary purpose with regard to prospective educational plans under discussion by the committee. These lectures will be delivered by well-known authorities in the industry.

"In connection with the lectures, the committee recommends:

"1. That the lectures be delivered orally at Chicago, in some appropriate hall to be obtained by the committee.

"a. That a small fee be charged for registration.

"b. That persons not engaged in the industry be admitted to the lectures but only after provision has been

made to accommodate persons engaged in the industry.

"c. That the lectures cover such subjects as the economics of the packing industry; live stock, the raw material; manufacturing operations; packing house accounting; distribution problems.

"2. That the lectures also be issued by the Institute, through correspondence or extension methods, to member companies outside of Chicago.

"3. That the inauguration of specialized courses be not attempted at this time but that the committee be directed to proceed further on plans and negotiations looking toward the inauguration of specialized courses at a later date, perhaps next fall. The chairman of the committee and the chairman of the sub-committee on training courses have given considerable thought to this phase of the problem. Conferences on the subject have been held with educators of note, and we believe that the committee's conclusion on this point is sound.

In conclusion it only remains to be said that the meat industry is fully awake to its responsibilities as the largest single industry of the country. It has made an exhaustive survey of its problem, it is already functioning with high effectiveness as a trade organization and is now ready to begin the second phase of its program, namely, the educational.

Aim of the Institute Plan

The Institute plan provides that "the Institute ultimately should become an organization which shall be a combined trade association, industrial museum, research institute and educational institution."

Specialty Manufacturers to Meet This Month

The annual convention of the American Specialty Manufacturers Association will be held Nov. 15, 16 and 17, at the Hotel Traymore, Atlantic City, N. J. Among the speakers are: N. B. Gaskill, chairman of the Federal Trade Commission, Washington; Charles Wesley Dunn, counsel, American Specialty Manufacturers' Association, New York; Irving S. Paull, secretary, Joint Agricultural Inquiry Committee, Washington; J. H. McLaurin, president, American Wholesale Grocers' Association; J. W. Herscher, president, National Wholesale Grocers' Association; Walter G. Campbell, acting chief of the Bureau of Chemistry, Washington; and F. E. Kamper, president, National Association of Retail Grocers.

The banquet will be held Nov. 16, at which former Vice-President Thomas R. Marshall, Earl D. Babst, president of the American Sugar Refining Company and the Rev. E. M. Wylie, are expected to speak.

This is the second of a series of articles appearing in *The American Food Journal* detailing the broad, important accomplishments of various branches of the food industry. In the October issue there appeared an article on "What the Baking Industry Has Accomplished," which is followed here by a story of the accomplishments of the meat industry toward self-service and public service.—THE EDITOR.

Food Poisoning and Its Prevention

Frequency of Enteric Outbreaks and of Botulism Points to Failure to Appreciate Danger

By Dr. CHARLES THOM

Mycologist, United States Bureau of Chemistry.

IN discussing the control of food poisoning, with a group of food officials, I assume that you desire a summary of the present status of information upon the subject presented rather than an intensive discussion of experimental work. No more important problem confronts the food officer than the elimination of poisoning outbreaks and epidemics due to food. In dealing with water and milk, as with added poisons and with products inherently poisonous, much progress in control has been made, but outbreaks of so-called "ptomaine" poisoning and of botulism still come upon us from unpredicted quarters so frequently as to indicate very general need for education as to the organisms responsible, their source in nature, their manner of entrance into our food products, and means for their control. By limiting this discussion to food poisoning of bacterial origin, poisoning outbreaks from foods naturally toxic and from added poisons are excluded.

Food poisoning in this sense is sickness resulting from eating products which are ordinarily consumed without ill effect. The food products responsible either (1) act as carriers of infection, or (2) have become toxic on account of multiplication of bacteria in them before consumption. (1) As carriers of infection, they may be passive—merely act as a vehicle to transfer organisms from a diseased subject to a healthy one (examples—typhoid carried by water or tuberculosis carried by milk), or they furnish a nutrient in which a few disease germs multiply to become a mass infection, hence increase the danger to the consumer tremendously as in the outbreaks of enteritis from milk or meat. In the one case the food product is contaminated: dirt or filth has been added. In the other, decomposition has begun. (2) If toxic, the food has been contaminated with organisms which have multiplied and produced poisons there before the food is eaten. Food proved to be in this condition is decomposed in the sense of the food law as well as a menace to health.

The recognition of botulism by Wil-

Advice to Consumer—Inspect Every Can of Food

When buying:

In tin—

(1) Both ends should be flat or curve slightly inward.

Neither end should bulge, snap back when pressed or feel loose.

Make no exceptions.

(2) All seams should be tight and clean, with no trace of leaks.

In glass—

(1) The cover should be firm—flat or concave, with seam, collar band and label clean and free from all signs of leak.

(2) The contents should appear free from mold, disintegration, cloudiness or other abnormality and show no discoloration.

Accept Only Cans In First-Class Condition.

When opened:

Suction inward is highly desirable.

No outrush of gas or spurt of liquid should occur.

The odor, observed immediately, should be characteristic of the product.

No trace of foreign or objectionable odor should be present.

No disintegration, no mold or other abnormal appearance should be observed.

Liquid enough to cover the food is desirable in most products.

The inside of the can should be clean and bright, or well lacquered, not extensively blackened or markedly corroded.

If You Know It Is Spoiled, Destroy It.

If After Examining It, You Can't Tell, Add Half The Volume Of Boiling Water And Boil Thoroughly.

bur and Ophuls¹ in California in November, 1913, started a series of investigations of poisoning due to food products by which our knowledge of the responsibility of the condition of the food for the health of the consumer is gradually reaching definite enough form to become a sound basis for educational and law-enforcement measures. Previously comparatively little systematic effort had been made in America although individual poisoning cases had been studied.

Two Forms of Food Poisoning

If for the present moment we disregard food borne epidemics such as typhoid or diphtheria, food poisoning as the term is commonly understood takes roughly two forms—one, an acute gastro-intestinal disturbance with nausea, vomiting and purging as chief symptoms and commonly misnamed "ptomaine" poisoning, and as a second form, disease of the central nervous system typified by botulism. The first is frequent but with low death rate—statistically reported as 1 to 2 per cent. Botulism fortunately is not so common for it has a mortality of about 60 to 70 per cent. Both types of poisoning usually involve a large percentage of those eating a particular product. The number involved thus varies from the members of a single household to large groups using the food of a particular dealer or eating at a public institution. Both types have been extensively studied but there remains much that we do not know about them.

The Gastro-Intestinal Type

Outbreaks involving acute abdominal distress, with more or less prostration, are exceedingly common and vary greatly in intensity but usually show a low fatality rate. Many investigations have been attempted but only a small per cent of the outbreaks have been satisfactorily explained bacteriologically. In these cases, the organisms incriminated belonged to the so-called Gaertner or paratyphoid group and related forms which have been variously identified, sometimes incorrectly as *B. enteritidis*, *B. suipestifer*, *B. aertrycke*, and by other names. Manifestly a whole series of forms related but differing widely in pathogenicity is involved. Savage² in his book summarized the information available upon this subject in 1920. Jordan, Rosenau and Weiss, and others present the same view. The outbreaks explained by these authors are shown to have been infectious, not toxæmias. The food was sometimes obtained and examined but more frequently the bacteriological evidence was obtained from the pa-

²W. G. Savage. Food poisoning and food infections. Cambridge Univ. Press. 1920. pp. VIII+247. figs. 3.

M. J. Rosenau and H. Weiss. Food infections, with an illustrative outbreak. Jour. Am. Med. Assoc., 77 (1921), No. 25. pp. 1948-1951.

Jordan, E. O. Food poisoning Univ. of Chicago Press. 1917.

A paper read at convention of Association of American Dairy, Food and Drug Officials, Kansas City, Mo., Oct. 3-6.

¹Published later. Wilbur, Ray Lyman, and W. Ophuls. Botulism, a report of food poisoning apparently due to eating canned string beans with a report of a fatal case. Arch. Int. Med., Oct., 1914, p. 589.

tients. In these cases, therefore, an acute infectious disease followed fairly quickly after the consumption of contaminated food. In consequence, other outbreaks showing the same symptoms are accepted as representing similar infections even though proof has been lacking.

Savage reports the onset of this disease to follow after the eating of the dangerous food by a period varying from 30 minutes to 40 hours or longer (p. 47). He regards the period involved as a combination effect of the amount of bacteria taken in as an infection and the amount of toxin already formed in the food eaten and notes also that outbreaks may occur from heat resistant toxins, in food in which the organisms have been destroyed by cooking. He appears to be convinced that thermostable toxins are produced by microorganisms, although it has not been possible to define the dangerous conditions accurately. This belief is based upon consideration of cases of sickness resulting from canned food and from other products in which cooking has been apparently adequate. Until our knowledge of these cases has been greatly extended, therefore, the possibility of poisoning from food in which dangerous organisms have had a chance to develop before cooking remains at least open.

Much propaganda has been based on the interpretation of these outbreaks as infections, not poisonings by food. This campaign has been accompanied by misleading headlines which carry the inference that food is unjustly accused as the cause of poisoning. Its agency as the carrier of infection is ignored. If eating some particular food is manifestly the immediate cause of sickness, the sufferer may be excused for not discriminating between a true poisoning and an infection where the line of demarcation cannot be accurately drawn by the bacteriologist. Protection from this group of troubles depends upon determination (1) of the identity and sources of the infective organism or toxin, (2) of the method of contamination of the food, (3) of the conditions of incubation, and (4) of methods of detection or elimination of the danger when present (i. e., control). While much remains unknown, available information on these points may be discussed separately.

Source of Infection

Bacillus enteritidis, *B. aertrycke* and allied forms are pathogenic to rodents and to domestic animals, especially hogs, cattle and horses. A number of outbreaks which have been fully traced were clearly attributable to meat of animals shown to have been infected before slaughter. Milk from animals suffering from infections of this group has been shown to carry the organisms in some cases. The widespread distribution of these species as infections of domestic animals, generalized or local, sometimes trivial, again severe

Dealer's Inspection in Handling Canned Food

(1) Inspect every can when you open the case.

(2) No "swell," "springer," "flipper" or "leaker" should be accepted or sold by you. In glass, examine the cover and the seam, inspect the contents for signs of spoilage. Do not tolerate any spoiled product upon your shelves.

(3) If a lot shows many swells, reject the lot. Do not take the responsibility of sorting a bad lot of cans and selling those apparently good.

(4) You are entitled to demand a well-exhausted pack, every can showing good vacuum, with clean and bright metal.

(5) Your customers are entitled to the same protection.

Even a trace of swell should prevent the sale of a can to any consumer.

No canned food showing spoilage should ever be reprocessed.

The removal of every container showing a sign of swell will go a long way toward preventing food poisoning.

Rigorous withdrawal of all packs showing extensive spoilage is imperative.

in their lesions, furnishes according to this view a reservoir of infectious material which is well distributed throughout the food-producing regions. Proper meat inspection may remove the more seriously infected flesh but enough infected material will slip by to insure the entrance of infected meat into many lots of human food.

Contamination

With infected products at hand, organisms of this group are believed to be distributed by rodents and other vermin which infect food handling establishments. In addition, dirt, filth and all the accidents and contacts of handling, including both human and animal carriers, provide ample opportunities to pass contamination from product to product. That contamination, although rapidly dying off in many products, is abundant enough and persistent enough to be a real menace in most localities.

Incubation

These organisms multiply rapidly in a wide range of food products and of conditions. In experiments by Koser in the Bureau of Chemistry³ growth was obtained in tomatoes, spinach, string beans, peas, evaporated milk and various meat products, with wide differences in acidity (PH_4 to PH_8). There was no growth and the organ-

³ Koser, Stewart A. Development of Paratyphoid-Enteritidis Group in Various Foodstuffs. Jour. Infect. Dist., 31 (1922). No. 1, pp. 79-88.

ism died off quickly in sauerkraut, pineapples, raspberries, cherries and pears. Multiplication in the vegetables was most rapid at blood heat but was still often perceptible in the ice refrigerator from 6 to 9 deg. C. In these experiments a small initial inoculation of *B. enteritidis* became many millions in 24 hours at blood-heat, reached similar figures in 48 hours at 20 deg. C. (68 deg. F.) (and showed slight increase or occasionally slight decrease at 6 to 9 deg. C. Maximum numbers were commonly reached at blood-heat in two days, and at 20 deg. C. in four days, followed by a fall in numbers which apparently sometimes reached actual sterility. At ice box temperatures the changes in number in either direction were slow and small; the contamination may not multiply greatly but it certainly does not die out quickly in the refrigerator. The changes of appearance, odor and taste produced in pure culture experiments are scarcely perceptible. No offensive odor is produced. An increase in acidity alone may be noted within the 2 to 4 days required to reach the maximum numbers of bacilli. The consumer of such a product without knowledge of its history has little or no protection from his senses. All investigations agree on that point. An inoculation of these bacilli at one point upon a product, such as salmon, corned beef, or sausage, spreads throughout the mass at a rate influenced by the softness, or by the water content of the material and by the temperature. Upon a fairly compact substance, Hamburger steak, multiplication at the point of inoculation was rapid at 37 deg. C. with penetration to considerable distances in 24 hours, whereas at 20 deg. the bacterial contamination while largely increased remained localized near the point of inoculation.

Control

Faced with the ubiquity of these organisms, and of the means of distribution and confronted with their ability to multiply in most of our food-stuffs, what can we do to eliminate the danger? As infections several characteristics of the group involved must be relied upon for this purpose. They do not form spores and the bacilli themselves are killed within 30 minutes at 60 deg. C. Any cooking process in which the entire mass approximates the boiling point (100 deg. C.), will destroy them entirely. If recontamination occurs, proper refrigeration reduces multiplication to a minimum which will be readily removed by any real cooking process before serving. Milk properly pasteurized (62-63 deg. C. or 145 deg. F. for 30 min.) is freed from these organisms. Canned food, if it keeps at all, must be cooked far beyond the thermal death point of the enteritidis group. Infections of this kind are, therefore, very unlikely from products direct from the can. Contaminations may be carried

(Concluded on page 33)

American Dietetic Association Meets

Inspiring Program and Interesting Exhibits—Octavia Hall, Chief Dietitian of Peter Bent Brigham Hospital, Elected President



Octavia Hall, chief dietitian of Peter Bent Brigham Hospital, Boston, elected president of American Dietetic Association.

THE American Dietetic Association held its fifth annual convention at Washington, D. C., October 16, 17 and 18, with a concluding meeting at Johns Hopkins University in Baltimore on October 19.

Besides the important papers and discussions on dietotherapy and kindred subjects, the association had prepared for visiting members and guests an interesting exhibit of various food-stuffs, hospital appliances and educational material.

Octavia Hall, chief dietitian of the Peter Bent Brigham Hospital, Boston, was elected president, to succeed Mrs. Mary DeGarmo Bryan of Jersey City, N. J. Other officers elected were: first vice-president, Hallie Corsette, dietitian, Veterans' Bureau, U. S. Public Health Service, Washington, D. C.; second vice-president, Effie Raitt, of the University of Washington; treasurer, Anna Bollen, of the Infants' Welfare Association 824 East Forty-seventh Place, Chicago; secretary, Breta M. Luther, chief dietitian, the Children's Hospital, Boston.

The Opening Session

At the opening session the history, immediate status and probable future of the dietitian were discussed interesting sidelights being thrown on

the struggle of the hospital dietitian for adequate recognition.

Mrs. Agnes O'Dea told of the broad vision of Johns Hopkins and of the close cooperation between the medical staff and the dietetic department. Johns Hopkins Hospital is one of the institutions doing pioneer work in developing the national place of the dietitian in the hospital program.

At this session it was brought out by Dr. Wheeler and other members of the educational section that the time is probably not far distant when the efforts of the pioneers will have borne even greater fruit and in an increasingly large number of hospitals the dietitian will take her rightful place as consultant with physician and nurse, in planning both preventive and curative measures for the benefit of patients.

At the afternoon session of this section, there were two papers on the subject of diet in diabetes. Dr. Elliott P. Joslin, of Boston, called attention to the need for extending work in the formulating of directions for measuring standard portions; he also spoke of the fact that the actual caloric value of a pound of human flesh is seldom taken into account, when prescribing diets for disturbances of metabolism.

Educating the Patient

Dr. Philip Marsh of Ann Arbor, Mich., stressed the need for education of the patient himself, and was of the opinion that the patient might render valuable assistance to the physician and dietitian in preserving his own metabolic equilibrium.

The concluding paper of the session was that of Laura Comstock of the Eastman Kodak Company, Rochester, N. Y. Miss Comstock is beginning some interesting experiments in guarding the health of industrial employees through attention to diet. Intensive work with a small group is now being carried on and results will be used as a basis for developing the project as a whole.

The dinner meeting at the New Willard Hotel was given over to representatives of diet work in the United States Army and Navy. Physicians and nurses from the U. S. Public Health Service exchanged friendly greetings and experiences of work in military and naval circles, both in the United States and in Europe.

The Dietotherapy Section listened to papers on food costs, on the preparation of special diets, on the advisable quantity of protein in nephritis and other topics.



Breta M. Luther, chief dietitian, Children's Hospital, Boston, elected secretary of American Dietetic Association.

There was a noteworthy tendency in all the papers toward a reevaluation of the place of a diet of normal metabolism in the treatment of disease.

Interesting Field Trips

Members of the association made some interesting field trips, visiting the Walter Reed Hospital, the Office of Home Economics, U. S. Department of Agriculture, and the Government hotels.

At the evening meeting of the Dietotherapy section Mary Swartz Rose of Teachers College, Columbia University, read a paper on the relation of proper diet to nutrition of children. Dr. Rose illustrated her points with lantern slides of charts and laid special emphasis on ways of getting cooperation from the children themselves. Comparisons were made, showing the effect of diets, and the principles of right diet for children were given.

Dr. Alfred Hess of New York spoke on the relation of hygiene to the growing child. He showed slides that pictured the rise and fall of weight curves, according to changing diets and drew interesting conclusions as to the effect of sunlight in the treatment of rickets. This disease, according to Dr. Hess, is distinctly seasonal, the

peak being reached during the winter season. This is one of the facts that leads Dr. Hess to the belief that the treatment indicated is not wholly dietetic, nor can it even be supplied by fresh air and sunshine alone. In other words the ultra-violet rays of the sun are decidedly more active in the morning and during the spring and summer seasons.

During the sessions devoted to the dietitian in social service Ida M. Cannon, director social service, Massachusetts General Hospital, Boston, spoke on the inter-relationship of dietitian and medical social worker. Miss Cannon is of the opinion that the authority should be assumed in each case, according as to whether the problem is one of diet or of administration.

Factors in Health Other Than Food

At this session Lucy Gillett, director of the nutrition bureau of the New York Association for Improving the Condition of the Poor, discussed the factors other than food that may influence nutrition. Crowded rooms, closed windows at night, insufficient clothing, insufficient rest may, either individually or collectively, detract from the good effects of the most carefully planned diet.

Mary Lindsley, manager of the Grace Dodge Hotel, told of some of the problems of administering a low priced hotel for women. The servant problem Mrs. Lindsley has solved, by the simple expedient of taking her staff into her confidence and making them feel that they are coworkers in a piece of team work. The guest problem is not so simple. According to Mrs. Lindsley, many of the women and girls who avail themselves of the extremely low rates have to be taught, indirectly, how to fit into a cooperative scheme of living.

At the closing meeting in Baltimore, Dr. William S. McCann, associate physician, Johns Hopkins Hospital, Baltimore, paid high tribute to the service rendered by the dietitian in feeding in illness. In discussing diets for the diabetic Dr. McCann told of a number of experiments performed on specific cases, one of the patients in question being present as a volunteer demonstration of the remarkable results obtained.

The gist of Dr. McCann's temporary conclusions is that physicians are tending more and more toward the consideration of the normal requirements of the patient as a basis for planning diets in diabetes. Perhaps no paper better illustrated the important part played by diet in treating disease than did Dr. McCann's. Stating as he did that each change in diet is frankly by experiment for each case, he showed graphically by means of slides

the startling changes taking place in the metabolic processes as a result of even slight changes in diet.

Dr. McCollum's Address

After a visit to the wards and diet kitchens the members of the convention listened to the final paper of the convention from Dr. E. V. McCollum. He traced the development of the methods used in the study of the processes of nutrition, through the period when the findings of the chemical laboratory were thought to be final and

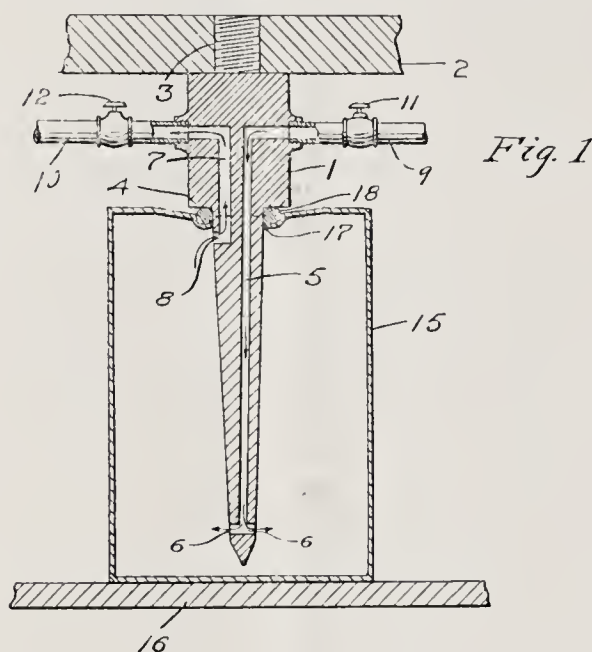
conclusive, down to the present, when the slightest variation of standardized dietaries may be tested by means of the physiological method, that is by the use of small animals. The fact that both rats and guinea pigs live at a much faster rate than do human beings makes it quite possible to calculate with exactness the probable effect of variations on the human system.

After a delicious luncheon, served by the dietitians under Mrs. Agnes O'Dea, the convention adjourned.

Machine for Canning Powdered Milk

Device Exhausts Air by Pumping and Introducing Sterile Gas

A machine for use in putting up powdered milk or other pulverulent food products in a sterile atmosphere, has been patented by Wilfrid Paul Heath of Chicago and Robert Mann Washburn of St. Paul, Minn. In principle,



ple, the device is a plunger, which may be inserted into a can or container of powdered milk or other food product and which by use of a vacuum pump exhausts the air contained in the can, at the same time forcing carbon dioxide or a similar gas heavier than air into the lower part of the container, thereby forcing the remaining air out preparatory to sealing.

The accompanying cross section of the plunger which is shown inserted in a container, illustrates its method of operation. In the main, the device consists of a bar, marked (1) in the illustration provided with a threaded stem (3), which is screwed into an opening in the plate (2). The bar is provided with a shoulder (4) which rests against the container and the lower part of the bar is in the form of a tapering plunger of sufficient length to reach substantially to the bottom of the container, from which the air is to be exhausted.

In the bar are two channels or ducts, (8) and (5) in the illustration. The

channel marked 8, ends directly below the shoulder of the bar and is connected with the pipe (10), which is attached to an exhaust pump. The duct marked 5, extends to within a short distance of the end of the taper, ending at the exits marked 6. This duct is connected with pipe 11, running to a gas tank supplying carbon dioxide or other sterile gas, under pressure.

The accompanying drawing shows the plunger inserted in a container with the filling opening at its upper end. On the tapering portion of the plunger, immediately below the shoulder, is a gasket (18), and a cap is provided for sealing the opening in the can.

The inventors claim that in operating on a can filled with powdered milk, the plunger is inserted through the opening in the top of the filled can and the can is raised forcing the plunger down. If it is impracticable to raise the can, it may be placed upon a stationary support and the plunger moved downward instead. By this means the plunger is forced through the material and the opening at the top is sealed by the gasket. When in position, the valve is opened on the pipe attached to the air pump and the greater part of the air in the can is withdrawn, leaving rarefied atmosphere in the container. The valve on the pipe attached to a tank of carbon dioxide or other sterile gas, heavier than air, is then opened and the gas passes down the length of the tapered bar, entering the can near the bottom. By means of the partial vacuum and the pressure of the gas, the can is quickly filled with gas. As the gas is heavier than air and enters the container at the bottom much of the remaining air in the can is forced upward and the most of it passes out of the can through the channel, marked 7 in the drawing. With the pressure sufficiently reduced, the can may be withdrawn by a downward movement and a sealing cap placed over the opening in the top and soldered into place.

Scientists Advance in War on Botulism

Investigation By Harvard, California and Stanford Universities and U. S. Public Health Service Results in Important Discoveries

AS a result of an investigation of food poisoning conducted by the medical schools of Harvard, University of California and Stanford University with funds provided by the National Canners' Association, a great amount of authentic information has been secured regarding the nature and occurrence of botulism. With a view to the prevention of further outbreaks, a thorough study has been made of the organisms producing this disease and the amount of heat necessary to destroy them. This work, in which the U. S. Public Health Service collaborated, marks a great step forward in safe-guarding the public against outbreaks of botulism.

The research has proved that all canned foods, whether prepared at home or in a large factory, are safe if heated for the time that has been scientifically determined. The need for guess-work has been eliminated.

Many More Persons Killed by Lightning Than Botulism

From time to time assertions have been made as to the prevalence of botulism, but using figures supplied by the California investigating authorities, the botulinus report declares:

"During the year 1920 there were more than 97,000 deaths from tuberculosis in the United States, more than 3,000 from dysentery, over 1,700 caused by accidental poisoning by products other than foods, nearly 5,000 from drowning, and over 800 persons killed by lightning. When we compare these with the average annual death rate from botulism of less than 25, the position of botulism among the causes of death becomes insignificant.

"If we accept for the sake of argument and without qualification the statement that a total of 29 outbreaks of botulism have been caused in the United States by commercially canned foods (an average of less than three outbreaks per year,) the number is still relatively small in comparison with the total pack. We should bear in mind that during recent years the annual total pack of canned foods of the United States has been not far from 4,000,000,000 cans. There has therefore been less than one outbreak of botulism ascribed to commercially canned foods for every billion cans that have been packed since botulism has been recognized as a disease that might possibly be caused by canned foods."

Botulism Found in Soil Everywhere

Sausages were formerly supposed to be the chief source of botulism, but it is now known that *B. botulinus* exists everywhere in nature and that its nat-

ural home is in the soil. Over 2,000 samples of soil and other agricultural products such as hay, husks, leaves and discarded material from fruits and vegetables from different parts of the United States were examined. A large number of samples were also examined from Alaska, Hawaii, Canada, Belgium, Holland, Denmark, England, Switzerland, and China.

It is found in the greatest abundance in soil that has never been cultivated, especially at high altitudes. The organism becomes less abundant as soil is cultivated and is found to the least extent in soils that have been subject to intensive cultivation. Even in older cultivated regions, however, *B. botulinus* has not disappeared from the soil.

Heat Plays Important Part

The proper heating of food in canning kills the germ. It has long been known that the toxin of *B. botulinus*, which is the direct cause of illness, is destroyed by heating. When this toxin is in clear solution or thin broth it is only necessary to heat it for a few minutes to a temperature of about 175 degrees Fahrenheit to destroy it. However, when the toxin is in a food containing considerable solid matter especially when a considerable amount of toxin is present, long continued boiling is necessary to destroy it.

The influence of heat was studied under all possible conditions. In securing data from which conclusions were drawn, something like 100,000 specimens were heated and studied in detail.

Prevention of Botulism Now Possible

As a result of the general investigation it is recommended to safeguard against botulism that in addition to the proper heating there be a thorough washing of all products. Also that fresh and sound vegetables be used, and packed with the least delay. A system of coding should be adopted in every plant by which each can is so marked that it may be identified. There are also specific recommendations regarding incubation, cooling and storage of canned products.

Noted Scientists Cooperate in Work

An idea of the magnitude of the investigation of the three universities may be gained when the various agencies and individuals participating are recounted. Cooperating in the work were the U. S. Public Health Service which detailed Dr. J. C. Geiger to act as epidemiologist, Harvard Medical School of Boston under the direction of Dr. M. J. Rosenau, Stanford University Medical School of San Fran-

cisco under Dr. E. C. Dickson, California University Medical Department of San Francisco under Dr. K. F. Meyer, and the National Canners Association Research Laboratory of Washington, D. C., under Dr. W. D. Bigelow.

It all began years ago when for a long time the National Canners' Association had cast about unsuccessfully to induce some government department or medical school to investigate the subject of ptomaine poisoning. In 1916 the National Canners' Association appealed to the National Research Council to organize an investigation of food poisoning along broad lines, the expenses of the investigation to be defrayed by the association. The National Research Council accepted this invitation and organized the investigation in the Department of Preventive Medicine and Hygiene at Harvard under Dr. Rosenau.

This was in the spring of 1917 and the work was carried on for three years. During that period an average of more than twelve well trained scientific men devoted their entire time to the subject of food poisoning, with results which must prove a substantial contribution to the public health. This investigation included the systematic study of all known forms of food poisoning. Special attention was given to the so-called ptomaine poisoning and a substantial beginning was made of the study of botulism. This study was greatly extended and was continued over an additional two years.

Work of California Botulinus Commission

As a result of the outbreaks of botulism in the fall of 1919, it was decided to organize an intensive study of botulism on the Pacific Coast and bring to bear on the question all agencies that might possibly contribute to its solution. Funds for this investigation were provided by the National Canners Association, the Canners League of California, and the California Olive Association. This investigation offered for the first time an opportunity for intensive collaborative study by a Federal department (U. S. Public Health Service), two of our great universities (California and Stanford), and the California State Department of Health.

Cooperation of Western Universities

At the Stanford University Medical School Dr. Dickson began the study of botulinus something like ten years ago when he was brought in contact with an outbreak that had occurred among the students there. He continued this investigation thereafter as far as his funds would permit and before the or-

ganization of the Botulinus Commission, had contributed many valuable articles of literature on the subject. In the investigations conducted by Dr. Dickson as a member of the Botulinus Commission he has had the cooperation of at least six well trained scientific workers and several laboratory helpers.

Dr. K. F. Meyer, recognized as one of the leading authorities on botulism, had at the University of California the assistance of an average number of more than fifteen scientific workers and seven laboratory helpers.

Arrangements were made last summer for the initiation of work on food

poisoning in the University of Chicago under the direction of Dr. E. O. Jordan. Associated with Dr. Jordan are eight scientific workers, giving their full time to this investigation. The Public Health Service detailed Dr. Geiger to work with Dr. Jordan. Among his other work, Dr. Geiger is investigating alleged cases of food poisoning as they occur.

The research laboratory of the National Canners Association, under Dr. Bigelow, was instrumental in the organization of the various investigations mentioned above and collaborated actively throughout the progress of the work.

pending, H. R. 8086, which has been passed by the House of Representatives, as containing much valuable scientific and educational information on the preeminence of dairy products in the human diet. He also spoke favorably of the high duties which had been obtained in the tariff on dairy products and vegetable oils, which tend to free the domestic product from competition. In concluding, Mr. Loomis called attention to the public hearings on the new rules and regulations now pending before the Internal Revenue Commissioner, governing taxes on oleomargarine and called upon all the members to communicate with their senators and ask for favorable action on the filled milk bill.

Officers Reelected

All officers were reelected for the coming year. They are: N. P. Hull, Lansing, Mich., president; J. R. Morley, Owatonna, Minn., vice-president; George Caven, Chicago, treasurer; and A. M. Loomis, secretary.

Dairy Men Attack "Filled Milk" and Oleomargarine

Secretary A. M. Loomis Explains Why Fight Against These Products is Being Continued

BOTH the margarin and "filled milk" industries were among the subjects discussed at the annual meeting of the National Dairy Union, at the Hotel Ryan, St. Paul, Minn., October 12, which was held in conjunction with the annual meeting of the National Creamery Buttermakers' Association. Professor M. Mortensen, Ames, Iowa, presided at the meeting of the National Creamery Buttermakers' Association and President N. P. Hull, Lansing, Mich., at the meeting of the National Dairy Union.

On "filled milk," A. J. Glover of Fort Atkinson, Wis., spoke in justification of the effort now being made to prevent its manufacture. Mr. Glover argued to the effect that milk is a fundamental food and that while filled milk is nutritious it does not contain the vitamins necessary to child growth of mind and body, and which are necessary in maintaining a healthy body. He pointed out that as milk is a fundamental food attempted imitation should be prohibited.

N. P. Hull, president of the National Dairy Union, spoke on the objects of the organization and what it has accomplished. He explained at length the basis of the long fight with the oleomargarine manufacturers and stated the reasons for its continuance.

Secretary Loomis Talks of Legislation

A. M. Loomis, the secretary, dealt at some length in his annual report on both the oleomargarine and filled milk industries. "Primarily," said Mr. Loomis, "and at all times, my job in Washington is to see that the legislation which is required to properly prevent all fraudulent practice on the part of manufacturers and vendors of oleomargarine is kept on the statute books, to see that existing laws which are satisfactory are not openly or otherwise changed or manipulated, and that if new developments take place adequate legislation is immediately

proposed to take care of it. Facing as we do in this matter the highly specialized and highly organized industry representing millions of dollars, it is evident that this job may at any time develop into a full-sized battle. It has not done this during the past year. The only law proposed to change the oleomargarine laws was a flash in the pan and never received serious consideration for a single moment after it was introduced. No new legislation has been contemplated during the year, although some changes in the way of strengthening the existing laws have been discussed from time to time. With the efforts of our opponents to market their stuff failing visibly every month, as the call for revenue stamps indicates, we have been content as long as we know that oleomargarine was being sold without fraudulent representation to let matters rest as they stand."

Mr. Loomis said that the experience of one or two states, Iowa in particular, in enforcing a truthful-advertising law had prompted him to think seriously of asking for additional legislation of this character in states which do not have such laws. He mentioned particularly the continued appearance of tinted oleomargarine on the market, which he said resembles butter as far as color is concerned but escapes the 10 cent tax by alleged subterfuge.

Referring to the "filled milk" bill, he said that the National Dairy Union had worked hard in support of the bill now pending. "All the elements of fraud," said Mr. Loomis, "which are inherent in the oleomargarine industry, which puts its product up in a container similar to that used for the best butter and makes its product look, smell, taste and act as near like butter as possible, are found in the 'filled milk' industry."

Mr. Loomis mentioned the bill now

Joint Committee Recommends Standards for Food Products

Additional food standards are announced by Dr. W. W. Skinner, Chairman of the Joint Committee on Definitions and Standards. The Committee at a recent meeting in Washington, adopted certain changes in the standards for "cayenne" and for "oil of cassia," and reconsidered and modified the definitions and standards for "cacao products" and "breads" to conform to the evidence obtained since the publication of the tentative definitions and standards for these products. The following changes were recommended:

(a) Under the heading "cacao products," definition and standard No. 2 "cacao nibs" has been altered so as to permit the use of dried beans.

(b) The definition and standard No. 3 "chocolate" has been altered so as to reduce the maximum of total ash allowed from eight and one-half per cent (8.5%) to eight per cent (8%).

(c) The definition and standards No. 4 "sweet chocolate," No. 5 "milk chocolate," No. 6 "cocoa," No. 8 "sweet cocoa," and No. 9 "sweet milk cocoa," have been rewritten, in part, in order to clarify the language.

(d) Definition and standard No. 7, "breakfast cocoa," has been altered so as to reduce the percentage of cocoa fat required to a minimum of twenty-two per cent (22%).

(e) The definition of "cacao butter" has been slightly altered to make it conform to the definition of "cacao beans."

(f) Under the heading "breads" the definitions for "wheat bread dough" and "brown bread" have been slightly altered to improve the verbiage.

The revised definitions and standards do not become effective under the Federal Food and Drugs Act until approved by the Secretary of Agriculture.

Meat Industry on a More Stable Basis

Packers in Convention Report Improvement in 1922—Importance of Public Education in Nutritive Value of Meat Emphasized

FROM the addresses and reports at the seventeenth annual convention of the Institute of American Meat Packers, Oct. 9, 10 and 11, at the Hotel Drake, Chicago, it was evident that the meat packing industry has been operating on a far more stable basis of values during the past year than was possible in the previous year.

In his address President Thomas E. Wilson said: "The first big fact is that the levels of meat values have become practically stable. On the whole there seems to be little tendency of having the entire level of meat values shift suddenly and precariously in some unforeseen and incalculable fashion. I do not mean that meat values are what they should be, but I do mean that we seem to have passed the time when the last reported sales created radically changed values. We cannot hail 1922 as a banner year, but it can at least be said that our sales, on the whole, have established a speaking acquaintance with our cost plus expenses. Values have become more completely dependable, more nearly stable."

Among the brief addresses made during the first day were reports by chairmen of committees of the Institute on "Saving Money by the Proper Handling of Livestock"; "Reaching the Consuming Public with the Co-operation of the Retailer"; "Improved Relations with the Public"; "What Is Known About Meat"; "Startling Facts About Your Own Delivery Costs." Among the speakers were Myrick D. Harding of Chicago, who spoke on "Packinghouse Sewage Problems"; Jay C. Hormel, Austin, Minn., whose address was on "Problems Peculiar to the Smaller Packing Units"; Harvey G. Ellerd, who spoke on "Intelligent Labor Policies"; J. H. Bliss, whose speech was on "Knowing Production Costs"; and John P. Dowding, chairman of the committee on standardization of containers, who dealt with "Economy of Standardizing Containers."

Other subjects covered during the convention were: "Type of Livestock the Market Demands," by Murdo Mackenzie; "Solving the Soft Pork Problem," by Howard R. Smith; "Eradicating Disease in Livestock," by W. F. Gehrman; "How the Washington Office Handles Emergencies," by Norman Draper; "Our Eastern Relations," by Pendleton Dudley; "Meat Councils," by John T. Russell of the United Master Butchers' Association of America; "Current Transportation Problems," by Charles E. Herrick; "Application of the Packers and the Stockyards Act," by Thomas Creigh; "Business Abroad," by S. T. Nash; "The Financial Out-

look," by J. Ogden Armour; "Co-operation in a Common Cause," by Howard Leonard, president of the National Livestock and Meat Board; "The Certificate Plan of Marketing Hogs," by Everett C. Brown, president National Livestock Exchange.

Consumption of Meat

Speaking of meat consumption, in his convention address, President Thomas E. Wilson said: "In 1919 this country consumed 15,837,000,000 pounds of meat and lard out of the 18,776,000,000 pounds it produced; but in 1921, it consumed 16,838,000,000 pounds out of a smaller production of 18,225,000,000 pounds. Similarly, meat consumption per capita in 1919 was only 150.8 pounds as compared with 156.1 pounds in 1921, but we should not be misled by this apparently increasing tendency. The story is different when we come to compare the first half of 1922 with the corresponding period last year. In fact, consumption per capita began to dwindle before 1922 was reached."

Dr. E. B. Forbes, director of the Nutrition bureau of the institute, outlined some of the educational work that has been done by this bureau, which includes the collecting and organization of scientific data on the nutritive value of meat and its place in the diet, circulation of this and other information through the medium of the Institute's bulletin, addresses at universities and before the Chicago Housewives' League and exhibits similar to the one presented recently before the American Dietetic Association. Dr. Forbes spoke particularly of the work which he is directing in correcting adverse advertising. "Our work," he said, "in this relation has accomplished results of which we are frankly proud." He said that many advertisers had freely conceded the bureau's request, several times in agreeable, complimentary terms. He mentioned specifically the cases of a manufacturer of egg noodles, two manufacturers of patent medicines, a publisher of a book on meat substitutes, a fish packer and an agricultural experiment station, which had disseminated serious misinformation in its bulletin, where correction of advertising was obtained.

Research Work on Nutrition

Dr. Forbes said that in scientific research his bureau had worked out a program of experimentation for co-operative work with the food and nutrition committee of the National Research Council and had compiled problems for investigation by the institute's own projected establishment. "Work has also been instituted in the labora-

tories of two of our member companies," said Dr. Forbes, "on the iron content of meats, this being of importance in relation to the cure of anemia, and there being no satisfactory figures for the iron content of meat in the literature." Dr. Forbes said that he was deeply impressed by the fact that there is in the literature an exceedingly limited amount of information on the nutritive value of meat and pointed out that the bureau will be almost at once in embarrassment because of this fact. He further pointed out that there is virtually no research work on meat now in progress in the scientific laboratories of the country.

G. F. Swift, Jr., who spoke on "Improved Relations with the Public," pointed out that the entire packing business has been bequeathed a background of unrefuted slander by its predecessors, who did not seem to have an effective machinery for defending the industry against misstatements. However, he said that today the public relations of the packing industry have been materially improved.

The Nutritional Value of Meat

"It must be apparent to all of you," said Dr. W. D. Richardson, chairman of the committee on nutrition, "that in order to overcome the falling off in the per capita consumption of meat, which has been emphasized upon more than one occasion that you and all the interests and individuals whom you represent must believe in meat as a fundamentally desirable human food-stuff, and not only that, but you must know the scientific and clinical facts in regard to the nutritional value of meat and its proper place in the diet of the child, the adolescent, the adult, the old, the laboring man, and the brain-worker, in order to meet any arguments which may be put to you."

Dr. Richardson called attention to the dearth of literature on the nutritive value of meat and took up the question of proteins in meat. He pointed out the high percentage of protein in meat as compared with other foodstuffs and also called attention to the facts, phosphorus and iron that are contained in meat. "A few members of the medical profession," said Dr. Richardson, "lacking complete knowledge of their subject, have given out the idea that there is possibly something harmful about meat, that there is a possibility that one might eat too much meat and that if it is not harmful in small quantities, it may be harmful in large quantities; naturally, many people have believed what has been told them by these misinformed physicians and have

taken up the cry that there may be something harmful in the eating of meat, certainly in excessive meat eating. This committee stands for the mixed diet, the so-called balanced diet in which meat has a prominent place. It does not recommend an exclusive diet of meat, but nevertheless, the fact is true and should be emphasized that when meat and meat products make up the entire food supply the diet is a perfectly satisfactory one as shown by various tribes of Eskimos." Dr. Richardson also dealt with meat as a cure for disease.

Standardization of Containers

"From our experience in the past two years," said John P. Dowding, in his address on the standardization of containers, "we have been forced to realize the necessity for careful study of every package under consideration for standardization. It is very easy to adopt some standard package and suggest to the members of the institute that they use it, but we must look behind the screens to see what effect it will have on the various interests affected. For instance, in standardizing a wooden box we must take into consideration the lumber man's problem, the problem of the sawmill, the problem at the packing house, the question of shipping and the public."

Mr. Dowding mentioned the time when the average packing house shipping export meats had from 25 to 40 different styles of export boxes for dry salt meat shipments and an equal number for export sweet pickle shipments. He said that one packer alone has been able to reduce his export boxes from 36 to two by standardizing. He also called attention to the recent recommendation of the committee that odd size lard pails be dropped. One packer by changing the style of his five and ten pound pails for a certain brand of lard so that the same automatic machinery could be used for making pails

of the same capacity, saved \$5,000 a year on this one item. Mr. Dowding pointed to the canned meat branch as a good possibility for standardizing on containers. Here, in corned beef, for instance, the United States army requires one pound net cans, while the preference of the public is evidently for the 12-ounce can. The elimination of either one of these sizes would make a great difference in the cost of canning.

Officers Elected

The following officers were elected for the ensuing year: President, Charles E. Herrick, Brennan Packing Company, Chicago; vice-presidents, C. B. Heinemann and W. W. Woods of the institute; Gustav Bischoff, Jr., St. Louis Independent Packing Company, St. Louis, Mo.; J. C. Dold, Jacob Dold Packing Company, Buffalo, N. Y.; J. J. Felin, John J. Felin & Company, Inc., Philadelphia; treasurer, John T. Agar, William Davies Company, Chicago.

Thomas E. Wilson, retiring president, was elected chairman of the institute plan commission; Charles E. Herrick to the central administrative committee, on which is also Thomas E. Wilson, G. F. Swift, Jr., Swift & Company, Chicago; T. Davis Hill, Corkran, Hill & Company, Baltimore, Md. J. Ogden Armour, Armour & Company; Edward Morris, Jr., Morris & Company; Thomas E. Wilson, Wilson & Company, and Thomas P. Breslin, Standard Packing Company, Inc., were elected directors for three years, and J. A. Wiederstein, John Hoffman's Sons Company, Cincinnati, Ohio, a director for two years.

Resolutions of thanks to the Department of Agriculture approving the maintenance of a merchant marine, opposed to the Hague Rules, 1921, urging support of the National Livestock and Meat Board, calling for recognition of the need of standardization of containers, approving the bonus offered by

the National Live Stock Exchange on hogs certified by the Federal Government and the state as free from tuberculosis, approving the work of the Department of Agriculture in fostering boys' and girls' club work in the raising of live stock and opposing government ownership of the merchant marine.

Presentation to Mr. Wilson

The annual banquet of the Institute was held at the Hotel Drake, October 10, attended by more than 700 members and friends. At the dinner a memento consisting of a set of testimonial resolutions illuminated on parchment and bound in a leather book containing the signatures of the leaders of the industry, was presented to the retiring president, Thomas E. Wilson.

The annual meeting of the American Meat Packers' Trade and Supply Association was held at the Hotel Drake, October 11, in connection with the meeting of the institute.

Officers of the American Meat Packers' Trade and Supply Association were elected for the ensuing year as follows:

President—R. B. Harbison, Paterson Parchment Paper Co., Chicago.

Vice-President—H. L. Harris, Pacific Coast Borax Co., New York.

Directors—C. H. Hanson, Thomson & Taylor Company, Chicago; Chas. V. Brecht, The Brecht Company, St. Louis, Mo.; Horace C. Gardner, Gardner & Lindberg, Chicago; H. G. Edwards, American Can Company, Chicago; W. J. Richter, Walter J. Richter & Company, Chicago; George M. Stedman, Stedman's Foundry & Machine Works, Aurora, Ind.; J. P. Griffin, P. G. Gray Company, Boston; John J. Dupps, Jr., Cincinnati, Butchers' Supply Company, Cincinnati, O.

The position of secretary and treasurer was left vacant, to be filled by the board of directors.

Experiments in Use of "Canning Powder"

IN response to many inquiries for information as to the use of "canning powder" to supplement heat in processing, received from widely separated places by the microbiological laboratory of the United States Bureau of Chemistry, some experiments were carried out by Ruth B. Edmondson, Charles Thom and L. T. Giltner of the bureau, which are contained in circular 237, recently issued.

Specific inquiries supplemented by samples obtained for analysis indicated the use of a particular preparation in many sections of the country. Several series of packages were secured for study. To furnish a basis for intelligent work one series of packages was analyzed by J. I. Palmore of the food control laboratory and found to consist of approximately 95 per cent of boric acid and 5 per cent of common salt, the actual divergences from this

average being about one-half per cent in either direction. Judging by the weight of the packages, each was intended to contain 1 ounce (28.34 grams) of powder. The directions given on the envelopes called for the use of one-fourth package to each quart of finished material and provided a means for the rough division of the powder into fourths. No suggestion that the use of an excess of the canning powder might be harmful was offered. Considering the difficulty of estimating how much bulky fresh material would make a quart of finished product and the haphazard method of measuring, the quantity of powder used in successive lots would be variable enough to lower its antiseptic value or possibly, if in excess, to affect the consumer.

In summarizing the experiments conducted, the paper says in part that

the powder in the amount recommended exerted a selective antiseptic action toward certain molds and members of the aerobic group of microorganisms in test-tube experiments. These groups are not responsible for spoilage in properly processed cans or jars and may therefore be disregarded. In the amount recommended for canning, the powder had no inhibitory effect on representative members of the anaerobic spore-forming group, especially the toxin-forming *B. botulinus*, which has recently been responsible for deaths from food poisoning. Use of the powder in practical canning experiments showed it to be unnecessary and wasteful. Use with more or less neutral vegetables showed that the powder plus the inadequate heating recommended was not sufficient to preserve the materials or to prevent the production of toxin in them by *B. botulinus*.

EDITORIAL

A Reversal of Opinion Regarding Uniform Food Legislation

IT is unfortunate that the Association of American Dairy, Food and Drug Officials concluded its recent convention at Kansas City without taking any constructive action toward clarifying the many conflicting food laws on the statute books of various States. It is singularly unfortunate that the association of food control officials should have reversed its former advocacy of uniform food legislation as it undoubtedly did in finding no objection to the statement of its retiring president, Captain Rose of Florida, who said:

"I am impressed that a uniform law for the nation and all states is not practical, and will probably never be enacted, acceptable generally to the states."

If Captain Rose's statement is to be taken as the view now generally held by the food control officials it represents a complete reversal of the opinions which have been expressed by the majority at the two preceding conventions. In 1920 at St. Louis uniform food legislation was officially endorsed by the convention which suggested the appointment of a committee to confer with special committees representing food manufacturers and distributors regarding such legislation. In 1921 at Miami, Fla., the association took further action along this line by directing the executive committee to prepare plans, as outlined at the St. Louis convention the year before, to bring about greater uniformity in state laws.

As a matter of fact, many of the members of the association individually are in favor of uniform food legislation. Their state laws are patterned after the Federal Pure Food and Drugs Act, and differ from it only in minor details. But a few food control officials in a few states have so persistently objected to bringing about food law uniformity that any concerted action on the part of the association as a whole has been effectually stifled.

The Calder bill for food law uniformity is still "alive" in one sense in the Congress of the United States, but in another sense it is so dead that it probably will never have an even chance to become law. The proponents of the Calder bill recognize this as clearly as do its opponents, and though a substitute bill will probably be introduced at the next session of Congress it is doubtful if that bill will stand much chance against the pressure which will undoubtedly be brought to bear against it.

As Dr. T. J. Bryan of the Calumet Baking Powder Company suggested in an address to the food control officials' convention, an effort will probably have to be made to secure greater uniformity in food laws without the enactment of a Federal law. Dr. J. S. Abbott of the Institute of Margarin Manufacturers suggested that each group of manufacturers whose product is suffering by reason of conflicting laws should present a brief to the food control officials in an effort to harmonize the differences which exist by mutual agreement.

Will some enterprising group of manufacturers set a worthy example for the entire food trade by selecting its own product as a starting point and endeavor by conferences with the state food control officials to bring about a mutual agreement upon a somewhat uniform law which will amply protect the consumers in all states and at the same time relieve the food manufacturer of the hardships suffered by reason of various laws so utterly at variance that what is lawful in one state is unlawful in another?

Food Manufacturer, Bio-Chemist, Dietitian, Nurse, Physician

AT a recent gathering in Johns Hopkins Hospital, Baltimore, many significant facts were noted. The fifth annual convention of the American Dietetic Association was drawing to a close.

An associate physician of the hospital was publicly paying glowing tribute to the dietitian as a power in controlling disease.

A volunteer patient was present to give ocular proof that what the physician said was true.

A famous bio-chemist was describing the latest developments in the technique of nutrition study.

The staff of dietitians with their director were hostesses—it was their day.

Each and every one of these facts was important and suggestive of even further team play in the future.

Before this meeting was possible, however, many forces had been at work not the least of which was the influence of the high minded and progressive food manufacturer.

The hospital dietitian feels her responsibility keenly and one of her first cares is to enlist the cooperation of the very best food manufacturers to be found. The fact that she enters into a business transaction with these manufacturers, a deal which results in practical benefit for both hospital and manufacturer, tells only half the story.

Before she is ready to step out of her office or diet kitchen to discuss, privately or publicly, it matters not which, the intricacies of nutritional chemistry she must have satisfied herself beyond the shadow of a doubt that the foodstuffs employed in making up the carefully planned diets are beyond criticism.

The manufacturer who sells food products to a hospital dietitian accomplishes far more than his own personal satisfaction in an honest trade, important as that is. He contributes directly to the work of scientists, whether physician, dietitian or bio-chemist, those keenly alert workers in the field of individual and public health.

Perhaps he has never analyzed it before, but it is a well known fact that unconscious influence is often far more potent for good or ill than consciously directed effort.

Be that as it may, the time when the food manufacturer's part in the game was over when he had sold a bill of goods is gone forever. Today he is a recognized member of that group of individuals who hold the public health in their hands: the manufacturer, the dietitian, the bio-chemist, the nurse, the physician.

To Our Domestic Science Readers

BEGINNING in the January issue The American Food Journal will add a new feature consisting of a four-page insert, devoted to the interests of the domestic science teacher. There will be material gathered directly from the field and representing the best ideas of successful domestic science teachers.

Class room problems, methods, sources and uses of subject matter, bibliographies, book reviews, stories of personal accomplishment, etc., will be among the features.

Representative educators will be asked to act as advisors in gathering the material and in preparing short articles; prizes will be offered for the best descriptions of special achievements in the domestic science class room.

Material will be carefully illustrated and the department as a whole will aim to be a clearing house of information on all subjects of interest to the domestic science teacher.

The American Food Journal invites its domestic science readers to begin now to send suggestions and material for this new department.

THE CONFERENCE TABLE

A Means by Which the Manufacturers, Consumer, Research Worker and Educator May Discuss Their Common Problems

By WINIFRED STUART GIBBS

The Home Economics Worker in the Food Industry

By MARY E. KEOWN

NEARLY all food products are prepared and distributed to win a woman's favor. Manufacturer and distributor alike seek to convincingly carry the message of the superior qualities of their own product to the homemaker who so largely controls its purchase. To that end they must study the buying habits of women and cater intelligently to their inclinations.

With this in mind, a good number of business concerns in the past few years have believed that they could advantageously use a feminine interpretation of their merchandising story. However, they progressed as far as they knew how when they said "We need a woman here in our own office who will help us get the point of view of other women." And right there is the place they probably made their mistake. Either they thought any sensible woman could do the job, and so took a woman already connected with their organization or they were taken advantage of by someone who probably had a pleasing way and a self imposed, but undeserved title of home economics specialist or home economics consultant. When the feminine interpretation failed to show adequate returns on the investment, as they had every right to expect it would, the business concern said—"No more home economics departments for us," and a splendid opportunity was lost. The trouble was that the business organization failed to realize that it was not alone a woman's point of view they needed, but the point of view of a woman thoroughly trained to know the housewife's problems and to understand the effective appeal to her. It is such training as this that can translate technical knowledge into terms applicable to the particular concern by whom she is employed. Home economics has come to be looked on as a profession.

Of Great Value in Food Industry

I know of no field where these home economics trained women can be of greater value than in the food industry. All of us realize that the last few years have brought distinct changes in the opinions of the homemaker on the subject of her family's



Miss Keown

These articles by Miss Keown and Miss Watson are the first of a series which The Conference Table will publish on "Home Economics in the Food Industry." The series will include articles from home economics women in the food industry as well as from the manufacturers who include home economics work in their plan of administration. Miss Keown, Assistant Secretary of The American Washing Machine Manufacturers Association, is chairman of the committee formed by the American Home Economics Association, to consider the development of a section in that association which should be devoted to home economics in business. Miss Watson is director of the educational department of the Royal Baking Powder Company.—THE EDITOR.

food. By the hot-lunch of the school children to the mechanic's milk-bottle, we can see on every hand an increased

knowledge and interest in food requirements. The housewife herself is intelligently investigating the source and quality of her food supply, and making her selection from products that will prove economical in price and valuable in nourishment. The homemaker understands better than ever the direct connection between the food she selects and the health of her family and of her community. Consequently she is turning her close attention to the products that she allows to come into her kitchen.

Much of this interest is a direct result of the work of the home economics forces in the country. Teachers in colleges, high schools and the grades, extension workers, the home economics departments of the women's magazines, have all had a part in carrying the food story to the American home.

Of all the forces that have reached the woman's eye and ear there probably has been none more forceful or attractive than the advertising done by various food concerns. The producers of foods must be prepared to offer the housewife practical suggestions and above all to furnish accurate and reliable information about the selection and use of their particular product. The trained home economics women whom we now find attached to the staff of many organizations has been able to function in this capacity.

Importance of Knowledge of Nutrition

Every food company has need of careful study of its own article. Often research work along certain lines is needed and here again the home economics worker can function. Knowledge of food chemistry translated into every day terms will furnish much valuable advertising copy that will play up to the consumer's interest in intelligent selection of foods. There is danger as well as unintentional deception and certainly loss of prestige and confidence when information on the complicated subject of nutrition is given out by people who do not know. For instance, calories are good things and all foods contain them, but what basis is there for the statement that oatmeal is to be considered a better food than meat only because a given weight may contain a great

number. Both foods have a legitimate place in the diet and neither need be excluded from the well selected diet. In the same way we have seen in the last year or two some remarkable statements about the much-discussed vitamins and their place in the plan of our existence.

I have in mind as an example of the value of a home economics worker in research the work being done by a certain yeast manufacturer. Methods of breadmaking are being studied constantly under her direction and careful experiments are conducted on flours, temperatures and mixing processes. This information as well as special help on individual problems then is furnished through the home economics department to any housewife who wishes to avail herself of the knowledge.

Various industries have undertaken cooperative educational campaigns through their home economics departments to advertise and inform the purchasing public to the value of their particular food. This is a real contribution to better home making, and is so regarded by the women of the country. Creating popular demand and inspiring confidence in the products of their industry is but another way in which the home economics worker can operate satisfactorily.

Advising the Housewife

The housewife has as her ever present problem the attractive serving of

a variety of dishes to suit the caprices and appetites of her family. The home economics specialist has devised many new and attractive ways of using little known or little used foods, and can do so for the company employing her. Well equipped kitchens are the laboratories which many concerns place at the disposal of their specialists. Recipe books which emphasize accuracy and food values have been prepared for distribution. Good charts and posters distributed to home economics teachers and used with classes of girls and women have aided in publicity for the particular product.

As examples of such splendid work that have brought great financial returns to the company done by home economics workers, let me call to your attention the fruit growers and packers of dried fruits.

Hardly a magazine or newspaper is without its appealing advertisement of new uses for these products, and back of the skillful advertising has been the home economics woman turning her training to the benefit of her company so that women might be attracted to the product.

Importance of Proper Demonstration

We have all come to realize how much the method and manner of approach to the consumer effects successful selling. The home economics worker can again be of assistance in training demonstrators or salesmen to present properly the advantage of their

product. The day has passed when the women successfully demonstrating foods need be only a good cook. She must be also trained to give a neat, well thought out demonstration and to be able to answer accurately questions on the place of that food in a balanced diet.

Not many companies have as yet realized the full importance of the phase of their work, but those who are giving it close attention are getting adequate returns on their investment.

A Link Between Advertising and Sales Department

In some concerns we find the home economics workers included in the advertising departments while in others they are directly connected with sales. So much of their information can be used in both departments that it now seems that the preferred organization will be a separate department of home economics serving as a connecting link between the two other departments.

The business world now can furnish examples of successful employment of home economics trained women. There are dozens of possibilities as yet untouched. In the food industry the home economics specialist still can be called on much further to help place the product she represents on a high plane for quality, to point out the place of that food in a balanced diet, and to assist materially in selling it on its merit.

A Woman's Advice Necessary in Marketing of Food Products.

By RUTH WATSON

Director Educational Department, Royal Baking Powder Company

FOOD manufacturers have slowly but surely come to the logical conclusion that products to be sold largely to women and used by women must have the benefit of a woman's advice, suggestions and influence in their production and marketing, and above all in their advertising.

Food industry and home economics are so closely related to their activities so interwoven that it is a profound mystery to me that they have so successfully kept apart for so many years. This may be explained by the fact that the college woman has hesitated to associate herself with the business world for fear of losing many of her high ideals and standards but far more I believe to the very natural hesitant feeling on the part of the manufacturer to associate with his business a too highly trained woman to give out information which would have a tendency to be too technical for his very practical consuming public.

The last few years, however, have seen great changes in this consuming public. The influence of home economics has made this felt to such an extent as to require entirely different advertising campaigns. False claims must be eliminated; highly exaggerated statements are no longer tolerated. In short all of the advertising material put out by food manufact-



Miss WATSON

urers must bear the closest scrutiny to be acceptable to our most discerning customers.

Women are becoming more and more

intelligent in the management of their homes and more scientific in the purchasing and preparation of their meals. They are becoming more interested in foods and demanding more food knowledge every day. It is perhaps difficult to realize to what extent these changes have taken place in the average household, and to what great extent the character of food advertising has changed to meet these new demands. It is a fact that the questions now coming in to our office daily are quite different from those received only a few years ago. These questions—even those from the humblest homes—now show thoughtful and marked advance, especially in the appreciation of home economics. To answer these questions adequately it requires the expert as well as practical knowledge of an experienced woman.

It is difficult to say who will profit more from this constant and continual mingling of the home economic and the industrial worlds or to what lengths this cooperation can go but it surely will develop better standards in both fields and has already developed a situation that makes it almost imperative for the food manufacturer to employ a trained home economics woman whose suggestions and advice as far as the woman's point of view

is concerned will be constantly heeded.

The Royal Baking Powder Company was, I believe, among the pioneers to establish an educational department and one of the first of the large food industries to recognize the service that a woman could render in this field. It was sufficiently far-sighted even at that time to see the importance of securing a home economics woman for this purpose for it was realized that in order to effectively reach the practical housekeeper and the trained teacher as well that an untrained inexperienced woman could hardly meet the demands to be made upon her. Neither could a man or group of men prepare and give out recipes and educational material in such form as would be readily usable and appreciated by women.

It most assuredly has now become "the fashion" in food industry to employ women who have been trained in a thorough school of home economics and this certainly is a big step forward in the right direction. However, this training is not sufficient and the home economics woman will not be an asset in the food business without the

ability to visualize the needs and problems of women living under all and most varied conditions. To accomplish this last it takes many years of hard work and experience acquired through constant daily contact through correspondence with women. It might be added here too that it is especially important that recipes published in cook books and other advertising matter be in such form that great experience in cooking should not be necessary for their practical working.

Our department in the seven years it has existed has become somewhat of a clearing house for all household problems whether they concern the housewife or the home economics teacher. It is here that the company is brought "face to face" as it were with our consumers in the rural community, the crowded city, the poor as well as the well equipped home both in this country and in practically every civilized country abroad. Inasmuch as this is true we ought to be in a position to render most valuable service. In this constant touch we have with consumers we ought to be well qualified to know the needs and de-

mands of all classes of people and at the same time the varied conditions under which our baking powder is sold and used.

Upon the director of this department lies the great responsibility of developing good reliable material and in giving out helpful practical information. It is her added responsibility to see that this material—whatever it may be—will not "fall down" under any conditions and will if possible increase the value of an already estimable food article. Everything distributed and all information of an educational nature given out must of necessity be worked out in careful detail from every standpoint under her direction. This task might indeed have been a much more difficult one had not the Royal Baking Powder been so firmly and well established and a product in which the public has had confidence. It will seem to me something of an accomplishment if the recipes and other literature and assistance going out from this educational department will stand up as well and inspire anything like such confidence.

National Canned Foods Week Plans

Canners, food brokers, and wholesale and retail distributors are beginning to grasp the possibilities of National Canned Foods Week, to be held throughout the country March 3-10, 1923. Co-operating in the campaign are the following large national organizations:

National Retail Grocers Association, National Wholesale Grocers Association, American Wholesale Grocers Association, National Food Brokers Association, Canning Machinery & Supplies Association, National Chain Store Grocers Association, National Canners Association.

All state retail grocers associations have been invited to participate. Indicative of the interest in the campaign has been the response and co-operation of the railroads.

Success of 1922 Canned Foods Week

By way of stimulating interest in the forthcoming national Canned Foods Week, it is interesting to note that a consensus of reports to national headquarters proved the 1922 week to be a distinct success. Especially so in view of the fact that prevailing business conditions were below normal, campaign appropriations were limited and the time for preparation short.

Certainly the extreme financial situation confronting all industries made the raising of a campaign fund difficult, and owing to this condition the committee was faced with the necessity of limiting the expenses to the "irreducible minimum."

This required the campaign being conducted on the principle of comparatively little money expenditure but the maximum of service and per-

sonal effort. Friends of the industry rallied nobly to the call, and only the great personal service so generously given made it possible to conduct the campaign at a minimum of expenditure.

Sales Increased 100 Per Cent and More

Notwithstanding the fact that the "week" idea has been more or less hackneyed and overdone, there was marked response to the canned foods drive by the trade press and a decided interest shown by the daily newspapers and the consuming public. Incidentally the committee has received many reports direct from retail grocers and 11 per cent of them report increased sales of from 100 to 400 per cent, due to the campaign. Twenty per cent show increases of from 40 to 70 per cent; 20 per cent report increased sales of from 20 to 33 1/3 per cent. Twenty-five per cent of those reporting say their sales increased but did not give the percentage of increase, and 8 per cent report no increase in sales.

The campaign was more intensive in some sections than others, and nowhere but what those in charge felt it might be improved upon this year, yet the drive was not confined to any particular section or to any especially large or small community. Successful demonstrations appear to have been made almost everywhere, not stopping at the coasts but reaching even to far away Hawaii.

Nation-wide Featuring of Canned Foods

North, South, East and West participated with a result there were

canned foods proclamations by governors and mayors, canned foods resolutions by chambers of commerce, canned foods sales, canned foods window displays, not only in grocery stores but in almost every kind of a store, canned foods window streamers, hundreds of thousands of them, canned foods window cut-outs, canned foods automobile streamers, canned foods placards on street cars, canned foods prizes to salesmen, canned foods school children's prize essays, a canned foods street parade, canned foods billboard displays, canned foods seals on stationery, canned foods blotters and canned foods circular letters and postcard appeals.

Also canned foods mention on hotel and dining car menu cards, canned foods displays and streamers in railroad stations, canned foods elevated railroad placards, canned foods streamers in banks and other mercantile offices, a huge can erected in front of the court-house in one of the large cities and illuminated at night by electric lights; specially prepared canned foods luncheons, canned foods addresses and informal talks, canned foods souvenirs to organizations like the Rotary Clubs, and a canned foods radio-telephone announcement.

Also general canned foods demonstrations, canned foods articles and editorials in daily papers, commercial supplements of daily papers devoted to canned foods, canned foods articles in official publications of chambers of commerce, canned foods issues of trade papers, and canned foods advertising in national magazines, daily newspapers and trade papers.

Corn Oil, Its Preparation and Uses

King of Cereals Furnishes the American Public With 75,000,000 Pounds of Edible Fats Annually

THESE is no question that to the average individual the statement that "corn is king" carries with it no realization that this most abundant of all American cereals furnishes annually about 75,000,000 pounds of edible fat, which finds its way into practically every home in the country in one form or another. It is interesting indeed to note that the two greatest crops of the United States, cotton and corn, furnish as a by-product the source of more edible vegetable fat than any other domestic material. The development of the cottonseed oil industry which has converted what was considered a valueless seed into a source for a great food staple, is an industrial romance known to all. The growth of the corn-oil industry is hardly less interesting.

History of the Corn Oil Industry

The production of corn oil had its inception not in a desire to produce the oil for commercial purposes, but to effect its removal from the corn and corn products in which its presence was considered undesirable. The scope of this paper will not permit the tracing of the industry in detail, but it is reported¹ that as early as 1875 an attempt was made to extract the oil from corn with carbon bisulphide in order to furnish the fat-free meal for the distilleries. In 1880 Schultz² described a method of removing the oil from corn mash and a year later came the suggestion by Leeuw³ to separate the germ from the remainder of the cracked kernel by means of flotation in brine of 15 deg. Be. This flotation method, in principle, is used to this day in starch and glucose plants, for the removal of the germ.

In the manufacture of corn meal, hominy grits, corn flakes and similar products, it has been found advantageous first to remove the germ from the kernel, especially if these products are to be shipped and stored, because the

fat in the germ under the influence of moisture and warm weather becomes rancid and causes a deterioration of such products. For the manufacture of starch and glucose, only the pure carbohydrate can be utilized and the germ together with other parts of the kernel must be removed. The degerming of corn in both the hominy and the corn starch industries soon became a definite step in the manufacture of such products, but the germs were disposed of as stock feed and not at first utilized for the preparation of corn oil. It was not long, however, before the value of these germs as a source of oil was recognized and the installation of equipment to remove the oil from the germs went forward rapidly so that at the present time no hominy mill of any size nor any starch plant, so far as known, has failed to make the production of corn oil an integral part of its operation.

The process of degerming differs considerably in these two types of plants. In the hominy mills the germs are removed by the dry process which consists essentially of sifting the germ from the coarsely cracked kernels by means of reels. By this method, from 4 to 4.5 pounds of germ material are obtained from a bushel of corn. The germs are more or less cracked and the smaller portions go into the feed stock. Adhering starch and other matter, however, cannot be entirely removed from the germs, consequently the material yields only from 12 to 15 per cent of oil. In the starch plants the germs are separated from the cracked kernels with very little loss, and are so thoroughly freed from starch and other matter by flotation and subsequent washing that a bushel of corn by this so-called wet process yields only about 3.5 pounds of germs from which, however, 35 to 40 per cent of oil can be obtained. The amount of oil obtained from a bushel of corn in the hominy mills is therefore about half a pound, while in the starch and glucose plants the average production is one and a quarter pounds per bushel.

The removal of the oil was at first accomplished by means of hydraulic presses but in the course of time these were almost entirely replaced by the expellers, which have been found very efficient for material of the character of corn germs. In the last few years solvent extraction methods have been introduced in some places. Time has not yet demonstrated whether this

method is more efficient than the expeller method or whether it yields as good a product. If such should prove to be the case, it is possible that the industry will pass through still another change. The cost of removing the oil from the germs by means of the expeller is approximately one cent per pound of oil from dry process germs, and from one-third to one-half a cent from wet process germs. These figures do not include overhead charges which are intimately involved with the other plant operations.

Refining Corn Oil for Edible Uses

Corn oil prepared from sound corn is comparatively pure. It is low in free fatty acids, especially that prepared from dry process germs, and the odor and taste, which are cereal-like in character are neither harmful nor entirely unpleasant. In its crude state the oil is used, no doubt, to a limited extent for edible purposes in small bakeries, but approximately 70 per cent of the total production is subjected to a refining process, and this indicates practically the proportion of the oil that is used for food purposes.

Corn oil is refined by methods similar to those used for other vegetable oils, and the final product is a pale yellow oil which can be used for all edible purposes for which peanut and cottonseed oils are adapted. The refining operations are confined to five or six companies which refine not only the oil produced in their own plant, but much of that produced in the smaller plants which are too small to warrant the installation of refining equipment.

It is estimated that to prepare an edible oil from crude oil in an equipment handling 50,000 pounds of oil a week, the cost will be about 1.6 cents a pound, provided the operation is carried on in connection with a hominy or starch mill so that the overhead expense will be chargeable only in part to the refining operation.

Composition and Character of the Oil

In its physical and chemical constants corn oil resembles cottonseed and soya bean oils. Its iodine number ranges from 115 to 125, being lower than that of soya bean oil, and higher than that of cottonseed oil. The solidifying point of its fatty acids is about 18 to 19 deg., being somewhat lower than that of soya bean oil and much lower than that of cottonseed oil. According to the recent investigations of

Presented at the September meeting of the American Chemical Society, at Pittsburgh, 1922.

¹ Lloyd John U., 1888—Maize Oil. *American Journal of Pharmacy*, Vol. 60 (ser. 4, vol. 18), p. 325-327.

² Schultz, 1880. *Die Maisolgewinnung aus der Maismaische*. *Chem. Centralb.* F. 3, Jahrg. 12, No. 3, p. 48, 1881. (Abstract.)

³ Leeuw, M. C. de, 1881. *Untersuchen über ein Verfahren, den Mais vor seiner Verwendung zur Spiritusbereitung von seinem Fett zu befreien*. *Biedermann's Centbl. Agr. Chem.* Jahrg. 10, p. 702. (Abstract.)

Baughman and Jamieson¹ the oil contains the following acids: Oleic, 43.4 per cent; linolic 39.1 per cent; palmitic, 7.3; stearic, 3.3 per cent; arachidic, 0.4 per cent; and lingoceric, 0.2 per cent.

Corn oil is used for both technical and food purposes. In the early history of its manufacture it found its sole application in soaps and paints, but the development of refining methods has made it possible to divert practically all the good grade of corn oil to food purposes. It is used in the manufacture of lard and butter substitutes, also for salad and cooking oils, and there is a growing demand in the large bakeries for its use as shortening. The poorer grade of oil finds its way mostly into soap and to a limited extent into cheap paints.

Corn oil is classed as a semi-drying oil but its drying properties are so slight that it finds only a very limited application in the manufacture of paints and only in connection with other oils. In the manufacture of rubber substitutes, it has been used with much success. The extent to which the oil is used for non-edible purposes is largely governed by the condition of the corn crop. Unless the corn is completely ripened, the oil produced therefrom is likely to be dark and to contain a considerable percentage of free fatty acids. Such oils cannot be refined economically and are usually used for non-edible purposes. In 1917 much of the corn failed to ripen properly, and the oil produced from that year's crop was of exceedingly poor quality.

Statistics of Production

Statistics show that from 1912 to 1917 the annual production of corn oil (edible and inedible) increased from 73,000,000 to 118,000,000 pounds. Since then it has declined to about 90,000,000 pounds annually. The greatly increased production during the years of the war was due, of course, to the large increase in the manufacture of corn products in general. Owing to the flour-substitute regulations, much more than the normal amount of corn meal was used, hence the milling of corn in hominy mills increased greatly. The removal of these regulations in the late fall of 1918 and the advent of prohibition shortly afterwards greatly reduced the market for hominy products, with a consequent decrease in the production of the oil.

Since corn oil is a by-product industry the production will always be governed by the conditions prevailing in the corn products market. From an economic standpoint the degerming of corn and the expelling of oil as an independent operation is not practical, hence the price and demand for grits, meal, flakes, corn starches, and glucose will determine the scope of the industry rather than the cost of corn and the value of the oil.

Much corn is milled in the South but the majority of the mills are small and the products are consumed within a comparatively small radius; also the southern people prefer corn products with the germ included. These conditions, therefore, make it rather improbable that any corn oil will be produced in the southern states, at least for some time to come.

Manufacturers of Soda Water Flavors Hold Meeting

The seventeenth annual convention of the National Manufacturers of Soda Water Flavors, was held October 24, at the Hotel Washington, Washington, D. C. The attorney and secretary of the association, Thomas J. Hickey, in his report stated that while numerous freakish bills affecting the industry had appeared during the year, no bad bills had been passed. In discussing legislation during the year and bills pending he outlined briefly the Calder bill and its status at present; the new revenue law which places a tax upon certain beverages and its effect upon taxation of concentrated flavors; Treasury decision 3253, calling for a manufacturers' serial number on the private labels of others whose extract he manufactures; the hearing held this year before the Bureau of Chemistry on the labeling of crown caps on soft drinks; Treasury decision 3335, which was rescinded and decision 3398, which is in effect and which the attorney of the association is now seeking to have cancelled; regulations recently issued under the National Food and Drugs Act and other legislative questions.

A resolution was adopted protesting against the use of the word "imitation" on the labels of bottled soda water, which is flavored with artificial or synthetic flavors. The resolution pointed out that the use of synthetic flavors has, through long usage and custom been established as the normal practice and the use of the word "imitation" gives the public the impression of cheapness and inferiority. It suggested the use instead of such terms as "Artificially flavored, colored or flavored and colored." The resolution upon adoption was immediately presented to the Bureau of Chemistry by a committee appointed for the purpose, a hearing with Dr. W. W. Skinner having been arranged. The board of the Bureau of Chemistry assured the committee that the resolution would be given consideration.

The following officers were elected for the ensuing year: President, Harry Whittle; vice-president, W. S. Bickford; treasurer, H. E. Harrison; secretary, Thomas J. Hickey; directors, D. W. Hutchinson, Charles O'Connor, H. C. Schranck, W. F. Meyer, and G. J. Hurty.

Cider Improved by Blending

How Apple Varieties Should Be Mixed for Pressing

CIDER can be greatly improved in quality by mixing more than one variety in pressing, says H. A. Cardinell, extension horticulturist at the Missouri College of Agriculture. In fact the Winesap apple and the Concord grape are the only fruits that are not improved by blending.

To make the most palatable cider the juice mixture must have three constituents, sugar, tannin and acid, in definite proportions. If the tannin content of a juice is high in relation to its sugar and acid, as is the case when crab apples are used, the juice will be astringent; on the other hand if the acidity is high, as in the Oldenburg and Milan apple, the juice will be sour; while if the Tolman, Grimes, Delicious or other sweet apples are used the sugar content will be so high that the product will be insipid and lacking in sprightliness.

Varieties vary greatly in aroma and characteristic apple flavor and if cider is made from Ben Davis, Collins, Northwestern, Alexander, etc., the product will hardly be recognized as apple juice; while if the juice of Delicious or Northern Spy is added to such varieties the flavor is splendid.

The mildly acid or slightly tart group of varieties, such as Winesap, Jonathan, Yellow Newtown, Stayman, Northern Spy and York, are about the only ones that will give ideal flavor when not mixed with other varieties, but will be improved if mixed with any of the sweet to sub-acid group including Baldwin, Hubbardston, Fameuse, McIntosh, Northwestern, Rome and the old variety Stark.

Wild Rice Used for Food by Aboriginal Indians

"The Indians of the upper Mississippi Valley were using the seed of wild rice for food when that region was first explored by Europeans," says a circular (No. 229) by Charles E. Chambliss, recently issued by the United States Department of Agriculture. The bulletin points out that the seed was eaten by the early settlers and traders and that it is frequently served now in the best hotels and restaurants, many considering it a great delicacy. After being parched, the grain is used by the Indians in soups or stews and makes an attractive dish when boiled and served as a vegetable meat. While it might readily be substituted for potatoes or cultivated rice in a dietary, the quantity available for general trade is small, as the Indians who gather it sell only what they do not need for their own use. This surplus being small, the price is high, which does not contribute to its popularity.

¹Baughman, Walter F. and Jamieson, Geo. S., 1921. The Chemical Composition of Corn Oil. Journ. Amer. Chem. Soc., Vol. 43, No. 12, p. 2696-2702.

Food Flavors: Their Source, Composition and Adulteration

By J. W. Sale, Chemist in Charge of Water and Beverage Laboratory, and W. W. Skinner, Assistant Chief,
U. S. Bureau of Chemistry

PART V

Preceding Chapters Published in May, June, July and September Issues

IN the preceding chapters eighty-one individual flavors were described, the last one being savory. In these articles it has been necessary to employ chemical terms, such as myristic acid, geraniol, methyl anthranilate, citral, carvone, safrol, camphene, dadinene, gaultherine, and cocaine, in setting forth the composition of the flavors. These chemical compounds belong to well recognized groups and if a general knowledge of the characteristics of the groups is had, the enumeration of the individual constituents will appear to be less confusing to the lay reader. Of the ingredients just enumerated, myristic acid, as the name indicates, is an acid, geraniol is an alcohol, methyl anthranilate an ester, citral an aldehyde, carvone a ketone, safrol a phenol, camphene a terpene, cadinene a sesquiterpene, gaultherine a glucoside, and cocaine an alkaloid. Organic acids which comprise the first of these groups may be divided up into a number of sub-groups, but as a group they are all characterized by the presence in their structural formulas of a specific aggregation of atoms termed the carboxyl radicle, the chemical symbol of which is—COOH. Radicles such as hydroxyl, carbonyl, carboxyl acetyl, aldehyde, are aggregations of atoms which act like single atoms and which often remain unchanged throughout a whole series of chemical operations. The so-called fatty acids such as acetic, butyric, caproic, myristic, palmitic and oleic acids, all of which have been mentioned either as such or in the form of their salts, contain one carboxyl radicle, while the aromatic series of acids such as benzoic and anthranilic may contain one or more such radicles. Ordinarily the ingredients of this group are termed acids, as for instance, myristic acid, and are thus automatically classified.

The alcohols of which there are a great number, and the phenols are organic compounds which are characterized by the presence in their structural formula of one or more hydroxyl radicles designated chemically as—CH. Those alcohols and phenols in which we are especially interested from the standpoint of flavors, and which are mentioned in this series of articles, have names ending in "ol" which is a general means of recognizing the two groups, although there are exceptions

to this rule. The following alcohols have been enumerated: borneol, citronellol, dihydrocarveol, farnesol, geraniol, linalol, menthol, nerol, nerolidol, terpinenol, and terpineol. The following phenols or derivatives of phenol have been enumerated: anethol, carvacrol, estragol, eugenol and iso-eugenol, safrol, and thymol. While both alcohols and phenols possess in their structural formulas the hydroxyl radicle, they have generally speaking very few properties in common, due to the fact that the way in which the hydroxyl radicle is combined in the alcohols is very different from the way in which it is combined in the phenols. For example the phenols as a class are very markedly acid while the alcohols are not.

Esters are combinations of alcohols with acids, water being eliminated in the process of combining. For instance, methyl anthranilate, the well known synthetic grape flavor, is a combination of methyl alcohol and anthranilic acid, although of course it can be manufactured in another way. We have mentioned specifically certain esters in these articles as follows: benzyl acetate, geranyl acetate, geranyl tiglate, linalyl acetate, methyl anthranilate, methyl salicylate, myristicin, neryl acetate, terpinyl acetate. Synthetic esters have been for many years important constituents of imitation flavors. For this purpose, the methyl, ethyl, butyl and amyl esters of acetic, butyric and valeric acids have been quite generally used. Aldehydes and ketones contain in their structural formulas the following aggregation of atoms respectively: —CHO and =CO and are derived from alcohols. Some of the aldehydes, such as benzaldehyde, cinnamic aldehyde and vanillin are made synthetically on a large scale and are of great importance to the flavor and perfumery industries.

Synthetic aldehydes of a fruity type, such as the high carbon aldehydes have in recent years attracted the favorable attention of manufacturers of beverage flavors. Another important aldehyde, namely citral, is obtained from lemon grass oil and is of value for the manufacture of imitation lemon flavors, and for other purposes. Quite a number of aldehydes have names ending in "al." The following aldehydes and ketones have been men-

tioned. Aldehydes: citroellal, cumic aldehyde, furfural, nonyl and decyl aldehydes. Ketones: camphor, carvone, diacetyl, jasmone and thujone. Terpenes are compounds of the general formula $C_{10}H_{16}$. They are for the most part volatile liquids and do not usually have much odor value in themselves. The sesquiterpenes are compounds of the formula $C_{15}H_{24}$, which are of higher specific gravity, boiling point and refractive index than the terpenes. The terpenes form a large proportion of a great number of essential oils. Lemon and orange oils, which are quite similar in composition, contain over 90 per cent of terpenes and sesquiterpenes. When all or nearly all of the terpenes have been removed from these oils the resulting products are known as terpeneless oil of lemon and terpeneless oil of orange, respectively. The terpenes, camphene, dipentene, limonene, phellandrene and pinene, and the sesquiterpene cadinene have been mentioned. The glucosides are a group of vegetable substances which are changed into two or more substances, one of which is a sugar, under the influence of a dilute acid or of those unorganized ferments called enzymes. The true nature of glucosides has not been established. We have referred to the glucosides, crocin, gaultherin, gentiopicroin, glycyrrhizin, and sarsaponin. Amygdalin may be mentioned also, since on hydrolysis under the influence of the ferment emulsin it yields benzaldehyde, an important flavor, dextrose, and hydrocyanic acid.

In a general way, an alkaloid may be defined as a basic nitrogenous substance, of vegetable origin which has some important physiological action. In this discussion we have referred to the alkaloids, caffeine and theobromine.

Of these groups of compounds, the alcohols, esters, aldehydes, ketones and phenols are very generally odorous and consequently they and their derivatives are of the greatest importance to the flavor and perfumery industries. The acids, terpenes, sesquiterpenes, glucosides and alkaloids, usually possess little or no odor but may be of value because of their fixative properties, because they are necessary for the production of odoriferous compounds or because of their physiological action.

82. Spearmint: Spearmint is defined by the Department of Agriculture as the leaves and flowering tops of *Mentha spicata* L. The herb is a perennial, a native of Europe and Asia, but has become naturalized here and grows in moist places throughout the eastern and middle western portions of the United States. The plant, or the oil obtained from it, is used to flavor mint sauce and other food, chewing gum and confectionery, but especially chewing gum. The yield of oil from the plant is highly variable, but a fair average yield is probably about thirty pounds of oil per acre. An authentic sample of American spearmint oil distilled in Michigan and analyzed in the Bureau of Chemistry contained 66 per cent of carvone, phellandrene and l-limonene, and dihydro-

carveol. Esters of acetic, butyric and caproic or caprylic acids were present also. Spearmint extract is the flavoring extract prepared from oil of spearmint, or from spearmint, or both. The extract should contain not less than three per cent (3 per cent) by volume of oil of spearmint.

Star Anise: See anise seed No. 7.

Sweet Basil: See Betula No. 10.

Sweet Birch: See Betula No. 4.

Sweet Flag: See Calamus No. 17.

Sweet Marjoram: See Marjoram No. 62.

83. Tar: Russian Oil of Tar is *Oleum rusel*, Empyreumatic Oil of Birch Tar is sometimes referred to as Birch Tar and is obtained in Russia by the destructive distillation of wood or bark of *Betula alba* L. Russian Oil of Tar is said to be used in very small quantities in one of the popular American soft drinks.

84. Tarragon: Tarragon is the dried leaves and flowering tops of *Artemisia dracunculus* L., a plant which is cultivated for its pungent aromatic leaves. The leaves or the essential oil derived from them are used in flavoring soups, and especially vinegar. One of the constituents of the oil is estragol or methyl chavicol.

85. Thyme: Thyme is the dried leaves and flowering tops of *Thymus vulgaris* L. It should contain not more than fourteen per cent (14 per cent) of total ash, nor more than four per cent (4 per cent) of ash insoluble in hydrochloric acid. Thyme is cultivated in gardens throughout the temperate zone and is extensively grown in the United States for flavoring purposes. The odor of the plant is agreeable and aromatic. Spanish thyme, *Thymus zygis* L., variety *floribunda*, has been offered for import recently as thyme, but little is known about it and it is considered to be a substitute and its value to be problematical. Oil of thyme is distilled from the fresh herb in France, especially, but also in Spain and Algeria. Red and white oil of thyme are commercial varieties, the red oil being unrectified. The yield of oil varies from about 0.2 per cent to about 1.0 per cent on weight of fresh herb. The French oil is stated to contain from 20 per cent to 35 per cent of phenols, chiefly thymol. Carvacrol is present also to a substantial extent. Other constituents are 1-alpha pinene, menthone, borneol and linalol. The oil is sometimes adulterated by removal of thymol. Thyme extract is the flavoring extract prepared from oil of thyme, or from thyme, or both, and should contain not less than two-tenths per cent (0.2%) by volume of oil of thyme.

86. Tonka: The tonka bean is the seed of *Coumarouna odorata* Aublet (*Dipteryx odorata* (Aubl.) Willd.), a large tree growing in Guiana and Northern Brazil. The fruit is an oblong ovate pod containing a single bean which has a dark brown brittle skin and a light brown oily kernel. The active principle of the bean is coumarin, the aldehyde of coumaric acid, which has a fragrant odor and bitter taste and which occurs in the bean up to 3 per cent. Coumarin occurs also in deer's tongue, a herbaceous plant growing in North Carolina, and in smaller amounts in numerous other plants. Synthetic coumarin is an important article of commerce. It can be manufactured from salicylic aldehyde, acetic anhydride and sodium acetate, also by the action of phenol on malic acid. Synthetic coumarin is largely used for flavoring in the place of tonka beans,

especially in the manufacture of vanillin and coumarin flavors and of imitation vanilla flavors. The fatty substance of tonka beans called tonquin butter is said to be an article of commerce in Holland. Tonka extract is the flavoring extract prepared from tonka bean, with or without sugar or glycerin, and contains not less than one-tenth per cent (0.1%) by weight of coumarin extracted from the tonka bean, together with a corresponding proportion of the other soluble matters thereof.

Tumeric: See Curcuma No. 36.

87. Vanilla: The vanilla bean is the dried, cured fruit of *Vanilla planifolia* Andrews. The vanilla plant is a native of the West Indies, Mexico and South America and is extensively cultivated in Mexico and in the islands of the Indian ocean off the east coast of Africa. The term Bourbon is applied generally to these island beans. The Tahiti beans and so-called vanillons are the fruit of the wild vanilla, *vanilla pompana*, and are very much inferior to the Mexican and Bourbon beans. The vanilla plant is a climbing parasitic perennial belonging to the orchid family. The beans, which are long, slender and waxy, are put through a curing process which develops the desired aroma. This process applied by native workers is rather crude and results in the marketing of beans which vary greatly in quality. One of the principal constituents of the vanilla bean is vanillin, which is also made synthetically in large quantities by the oxidation of eugenol, the chief constituent of oil of cloves. Vanilla is one of the most highly prized of all flavors and enormous quantities of the beans are imported for the manufacture of extracts and flavors, in liquid, powdered and emulsion forms.

88. Vetiver: Oil of vetiver is a grass oil distilled from the roots of the vetiver or cus-cus plant, a perennial tufted grass,

growing in the island of Reunion, in the Philippine Islands, and elsewhere. The oil is sweet scented, with a perfume suggestive of myrrh. Furfural, diacetyl and methyl alcohol are reported to be present in the distillation waters of the plant.

Wild cherry: See cherry No. 26.

89. Wintergreen: Oil of wintergreen is the volatile oil distilled from the leaves of the *Gaultheria procumbens* L., a small shrubby evergreen plant, widely distributed from Newfoundland to Georgia. Local names for this plant are, checker-berry, tea-berry, aromatic wintergreen and mountain tea. The yield of volatile oil from the fresh leaves is from about 0.5 per cent to 1.0 per cent. The oil is produced by the decomposition of the glucoside, gaultherin, hence is not present as such in the leaves. The oil contains about 99.0 per cent of methyl salicylate. Synthetic methyl salicylate and the cheaper oil of sweet birch which consists of about 99.8 per cent methyl salicylate are common adulterants of true oil of wintergreen. Wintergreen extract is the flavoring extract prepared from oil of wintergreen, and contains not less than three per cent (3%) by volume of oil of wintergreen.

The following description of flavor No. 9 was inadvertently omitted from Part I.

9. Balm or Melissa: Leaves and tops of *Melissa officinalis* Linne, the ordinary balm of southern Europe which has become naturalized in the United States. Minute amounts of an essential oil can be obtained by distilling the leaves of the plant. This oil has an odor somewhat like lemon grass and contains citral. One sample was reported to contain geraniol 20 per cent; linalol 12 per cent and citronellol 6 per cent. The oil is stated to be quite generally adulterated with lemon and citronella oils. It is used in flavoring liqueurs.

Salvaging Asparagus Waste—Opportunity for a New Food Industry

By H. D. MORGAN, Ph. C.

AMONG the many waste products, especially green or market shipped vegetables, is asparagus. Take asparagus: there is much of this that is wasted, some overgrown, some wilted and many times an over-production that even canneries cannot use and an oversupply causes under-price in the wholesale market. The shipper throws away at least one-half of each stalk he cuts. An extract could be made of the entire stalk. This extract could be easily handled part of it going for medicinal use in kidney and bladder preparations, while the remainder could be marketed in suitable form and sold under a trade name for the seasoning of soups, stews, gravies, etc. This would use up about all of the vitamin carrying part of this vegetable.

The resulting pulp, which is usually of extremely blanched or white texture with great tensile strength, could be turned into a fine white tissue paper similar to that sold by the bolt in Japan as a lining for light-weight clothing and resembling the spider web tissue used in this country for wrapping candy and confection boxes.

This fine tissue could be treated with a strong alkali or sulphuric acid to produce an extremely thin, tough parchment such as is used for diplomas and legal documents—possibly it could be used for drafting or tracing paper.

In the manufacture of this paper the Japanese method of pounding rather than pulverizing and by floatation, the entire length of the bast fibre could be felted, producing an almost untearable paper. Research fails to show that this has ever been tried.

It might even be possible to use the "tree stock" of asparagus for paper after the season's harvest. Does this not offer a substitute for lines stock?

This flax-like plant if harvested before it has fully dried can be worked up as the long bast fibre possesses wonderful tensile strength.

There is room for investigation along these lines—while it may not readily bleach, yet a method both for the development of tensile strength and white texture may be worked out.

Its use is suggested in cordage, cloth and even paper.

The root in pharmaceutical and medicinal preparations is already used.

The Best Things From Current Food Magazines

A Digest of the Month's Periodicals for the Busy Reader

Fighting Insects in Stored Foods Costs \$200,000,000 Yearly

THAT the loss caused by insects in stored foodstuffs represents one of our greatest economic wastes, is the statement made by Dr. Royal N. Chapman of the University of Minnesota, in the October issue of the bulletin of the National Wholesale Grocers' Association.

Not only does this mean the loss of a certain amount of food, but it also entails the loss of the labor of agriculture, manufacture and trade, which has contributed to the harvesting, milling and handling of the product. Dr. Chapman is entirely convinced that it is quite possible to reduce this loss to a minimum.

Following a discussion of conditions as they affect the presence of insects in canned foods, Dr. Chapman says, in part:

"Proper inspection of consignments received, cleanliness in the warehouse, and management of the stock to prevent long storage during hot weather, are essential to keeping insects out of warehouses. These methods of prevention are worth more than all known methods of eradicating insects after they once get in.

"For the purpose of inspecting a consignment, a few representative sacks or packages can be chosen for a careful examination. If these are free from all web or silk and show no marks of insect work, it may be assumed that the entire lot is free from insects. If some of the sealed packages have tiny holes in them they should be opened and, if insects are found, the whole lot should be inspected. In rice and other whole grains there will be some fine material in the bottom of the sacks and holes in some of the grains. Dried fruits may have insects in the center of the package. Dried fruits are usually heated at the time of packing but they often are infested later. Sometimes infested packages of dried fruit are unwrapped and the mass of fruit dipped in boiling water. This kills only the insects on the outside of the fruit. These are usually washed off and it may pass for first-class goods for a time but later the insects will again work from the inside.

"In each warehouse there should be a quarantine room, separated from the rest of the establishment, and so built that it can be closed tight. It should also be equipped with sufficient radiation that it can be heated to a temperature of 130 degrees, F. Such a room may save large quantities of food

from depreciation in value if not from destruction. All infested material or material suspected of being infested should be put in this room as soon as its condition is discovered. Only stock that is known to be sound should be in the regular warehouse. Such practice will prevent any insects from becoming established and will make for a reputation for dependable goods."

In closing, Professor Chapman gives a list of those insects most apt to annoy the wholesale food merchant, as follows:

Cockroaches may be exterminated by the careful and thorough use of commercial sodium fluoride. This material may be dusted into all cracks and corners and in all places where roaches have been seen. It is essential that the powder be used in all parts of the establishment at the same time in order that the roaches cannot escape. If this practice is continued for a time the place will soon be cleared of roaches. The same method may be used for fire-brats.

Insects of Special Interest to Wholesale Dealers in Groceries, Dried Fruits, Flour and Other Foods.

Miscellaneous Insects: Cockroaches, Ants, Book-lice, Mites, Cheese Skippers, Lepismids.

Beetles: Confused flour beetles, saw-toothed beetles, cadelles, meal worms, drugstore beetles, spider beetles, cigarette beetles, larder beetles, redlegged ham beetles, bean weevils, pea weevils, rice weevils, granary weevils.

Moths: Indian meal moths, Mediterranean flour moths, meal snout moths, angoumois grain moths.

Research Worker Performing Valuable Service in Showing How to Utilize Dairy By- Products

FOR every pound of butter we eat calves, hogs and chickens are consuming three pounds of solids that would make valuable food for human beings.

So says Prof. H. E. Van Norman, president of the World's Dairy Congress, in the Butter, Egg and Cheese Journal for September 27, 1922.

The dairy industry is confronted with the necessity of developing better uses for its by-products. There is a steadily growing market for skimmilk powder. The baker has been taught by the manufacturer that he can use skimmilk powder in the making of bread and make better bread at a financial advantage to himself. This has opened up a tremendous market for skimmilk

in the form of powder at prices greater than could be gained by feeding it to farm animals. I was in a laboratory the other day, where a by-product of whey has been perfected. The research man, after working a year to find someone who would use it, got a call for 20,000 pounds of the product in one order, and was fortunately able to direct the customer to a source of supply. This is suggestive of the opportunities for helpful scientific investigation which lie ahead of members of the American Dairy Science Association.

The Dairy Division of the U. S. Department of Agriculture furnishes figures that should give any dairyman pause, and students of nutrition will await with interest the results of future work that may be done on converting the now well-nigh wasted skim milk, whey and buttermilk into human food.

Suggestions to Bottlers for the Slack Season

AS the winter months are generally conceded to be the slack season in bottling plants, The American Bottler for September, 1922, presents the first of a series of three papers, by Joseph S. Caldwell, Plant Physiologist of the U. S. Department of Agriculture on the manufacture of unfermented apple juice or sweet cider.

Commenting on certain confusion of terms the author points out that the term "cider" may connote either fermented or unfermented apple juice, according to locality. The article discusses only sweet cider, or unfermented apple juice.

As to the use of preservatives, Mr. Caldwell says:

Many persons unfortunately have the erroneous idea that it is practically impossible to preserve apple juice merely by the use of heat and sealing, without the addition of some chemical substance to act as a preservative. This notion is entirely incorrect. Various chemical preservatives have been more or less used to prevent fermentation. Among these are salicylic acid, formic acid, benzoic acid, boric acid, sulphurous acid, and various compounds which upon being added to the juice are decomposed to set free some one of these substances. The use of benzoate of soda in an amount not to exceed one-tenth of 1 per cent in juices offered for sale is tolerated by the officials charged with the enforcement of the food and drugs act, provided the fact of its use is declared

on the label. The use of other chemical preservatives is forbidden.

Selecting the fruit, sorting and blending are all of vital importance, and the article after giving directions for all of these processes emphasizes the possibilities of prolonging the cider-making season as follows:

It is readily possible to prolong the cider-making season over several months after the close of picking if provision is made for proper storage of the fruit. The factors which govern the keeping quality of cider fruit in either common or cold storage are identical with those governing the keeping of marketable fruit of the same varieties. There is the same necessity for the exercise of care in picking and handling the fruit, in cooling the fruit rapidly to storage temperature to check the ripening process, and in maintaining control of temperature and humidity in the storage house after it is filled with fruit. Also, there is the same necessity for a close watch upon the progress of ripening in the fruit, in order that overripening may not be permitted to occur.

When fruit is to be stored for subsequent pressing, the ripening or "sweating" treatment discussed in the preceding section should be omitted and the fruit, after sorting over to remove decayed apples, should be placed at once in the storage room in field or lug boxes, so stacked as to permit free circulation of air. In so far as possible, varieties should be kept separate, and the storage behavior of the different varieties should be kept in mind as the house is filled, in order that short-lived varieties may be removed as they become ready for pressing, without disturbing the others.

The apples may be removed for pressing as they reach the proper degree of maturity, or may be ripened as needed by removing them from the storage house to a warm room.

The cider maker who provides facilities for storing his fruit thereby gains a number of advantages. He is enabled to postpone the work until after the close of the picking and packing season when labor is more readily obtained. He can secure fruit culled out in the course of packing, which is usually of better grade than orchard culls. The postponement of the work until cool weather decreases danger of loss of juice by fermentation during sedimentation. A very decided advantage is gained if juice is being marketed fresh from the press, in that the product is placed on the market after other makers have ceased to operate, and consequently finds increased demand at better prices.

Wirebound Box Possesses Seven Advantages as a Shipping Container

A WRITER in Canning Age for October enumerates the advantages of wirebound boxes as shipping containers thus:

1. There is a distinct saving in freight charges. Wirebound boxes weigh from 25 to 50 per cent less than other wooden boxes made to meet the same requirements. On canned food cases, for instance, the saving is about four pounds to each box. With a fifty-cent freight rate this means a clear

saving to the shipper of two cents a box. As transportation is always a part of the delivered cost of a food product, a reduction in this field means a lower delivered cost to the wholesaler, jobber and retailer. While the net saving per package is small, the total saving through a year's time, and especially in the case of large production, will total a very considerable amount. In export shipments at the customary space tonnage rates the use of wirebound boxes results in an approximate saving of about 5 per cent.

2. Fewer losses result from breakage. Wirebound boxes insure both the food packer and his customer against direct loss by breakage. All shippers will realize that this means something more than the elimination of damage claims. Conserving the good will of the customer is a matter of very considerable importance. There is no better method of sustaining profitable relations with distributors of canned food products than to lead them to feel that they are taking no chances of breakage or loss through inferior containers. With the use of wirebound boxes there is little expense for handling bad order packages.

3. Packing boxes of this type save on assembling costs.

The cost of making up wirebound boxes does not exceed one-third the cost of making up nailed wooden boxes. This is because there are no parts to get lost or require fitting. The blanks which form the sides, tops and bottoms are joined together with continuous binding wires. The ends are shipped either in bundles along with the "blanks" or in separate bundles.

4. Pilfering is eliminated by use of this type of box. To disturb the contents of a wirebound box after it has once been securely closed, it is necessary to cut or untwist the sealing wire ends. No matter how carefully such a box may be opened it cannot be re-closed without leaving evidence of the fact that it has been tampered with. If the wires are cut, the ends are left too short to be rejoined. If the twists are unfastened, the wires break when an attempt is made to retwist them. Pilfering is easily detected upon arrival of the package. It may then be refused and claim entered.

5. The packing of containers for shipment is facilitated.

Wirebound boxes, being generally purchased in knock-down form, may be assembled at the point in the factory where they are to be packed. This results, as a rule, in a considerable saving in time and is regarded by most food packers as a distinct convenience.

6. Economy of storage space is a factor. Whether in knock-down form bound box is a space saver. The average saving in space when made up is about 5 per cent over similar nailed wooden boxes. There is no limit to the height to which such boxes may be piled in the storehouse when packed and ready for shipment. Laboratory tests show that wirebound boxes carry a straight downward pressure of over five tons without damage to box or contents.

7. Adaptability.

The wirebound box can be made up according to specification in sizes to meet the particular requirements of any product in the field of canned goods. The wire binding may be va-

ried from two to five strands in order to strengthen the box to carry any load or endure any hazards.

After emphasizing the fact that this type of container combines great strength with light weight, the author proceeds to give detailed description of tests and specifications, and in conclusion:

From these tests it is quite evident that the wirebound boxes were not only stronger than the nailed box but also stronger than the nail box strapped at the quarter points of the top, strong as the wirebound box made of bottom and sides with 13 gauge wire. The test further indicated that the wirebound spruce box was twice as Douglas fir.

Science Suggests Packing Nuts in Vacuumized Glass

THE American nut packing industry is steadily forging ahead and according to an article in "The Glass Container" for October, its greatest single inspiration is the vacuumized glass container.

Twenty-five years ago the industry was just beginning to realize the importance of commercializing nut meats, and only the lucky individual grower was likely to succeed.

True, the cost of upkeep was high but the grower's greatest difficulty was not a cultural one, it was one of marketing.

The article goes on to discuss the development of this phase of the industry and also the place of nuts in the dietary.

Concerning the benefits to be derived from packing nuts in vacuumized glass the author says, in part:

"Packed in a vacuum, nut meats keep fresh. Packed in glass, nut meats look fresh. Combine the two. Pack nut meats in a vacuumized glass container and the result is the ideal package for merchandising nuts.

"Healthfulness is the primary importance of any food. Nuts in a vacuum maintain their full measure of proteids, fats, vitamins and salts. It is well known that nuts are an excellent alternative or substitute for meat.

"In closing it is remarked that with the acceptance by the nut industry of glass containers, more attention may be bestowed upon by-products of the nut industry that have heretofore been neglected in the United States. In Europe considerable quantities of young walnuts are used for making pickles and catchups, but despite the fact that there have been inquiries for such preparations on the part of would-be consumers in the United States, American nut interests have never risen to their opportunities just as they have made little effort to convert the American product into oil, as is done so profitably in Europe. It is, however, regarded as highly probable that in the era of larger nut production upon which the country is now entering and the conversion of the trade to glass packages proper attention may be paid to the nut specialties."

Suggestions for Prevention of Food Poisoning

(Continued from page 16)

by any product eaten raw but the reported outbreaks of infection seem to have been attributable to mass infections from products in which incubation has produced tremendous numbers of bacilli in the products eaten. Fresh, sound products apparently clean may carry minimal infections but will not carry mass contaminations. Any old, stale, moldy, specked, slimy, rotting or otherwise spoiling products may carry mass contaminations.

Cooked food products presenting a firm, comparatively dry surface, such as bread, cake, etc., should be preserved from recontamination to every degree possible but do not present favorable conditions for mass infections to develop. Baked dishes—meat pies, scalloped fish or oysters, etc., hashes and stews of many kinds, puddings and custards present a series of products in which the heat used is frequently totally inadequate to penetrate the mass. Many typhoid and acute enteritidis outbreaks on record have been traced to this series of products. The contamination responsible in a particular dish may occur either before or after the product enters the kitchen.

In spite of all precautions that can be provided by manufacturers, dealers, and food officials, infections of this kind will occasionally reach the domestic or public kitchen. The final responsibility and probably the major responsibility for outbreaks of this kind comes, therefore, to lie squarely before those who actually handle food and prepare it for the table.

This responsibility may be stated as follows:

1. Food to be eaten raw should be fresh, clean, sound—free from stale odors, from slimy rotting areas, from discolorations and from mold, and should be carefully washed in an abundance of bacteriologically clean water (that means drinking water).

2. Sound products freshly cooked (approximately to the boiling point) are freed from the organisms which cause enteritis.

3. Moist or soft cooked food to be held more than a few hours should be kept in a good refrigerator. If such refrigeration is impossible, the food even though showing no sign of spoilage should be recooked before serving.

4. Attention to these precautions would cut outbreaks of gastro-enteritis to the minimum represented by flesh of infected animals carrying enough heat resistant toxin to cause poisoning. This in the current view of the best authorities would leave very few dangerous outbreaks.

Botulism

The other group of outbreaks typified by botulism has already been discussed by members of the Microbio-

logical Laboratory several times in the seven years during which the project has been followed.⁴

The medical aspects of this problem have been amply covered by competent authorities. In this period botulism has passed from a trouble little known by the medical profession in America, to one now presumptively recognizable by the ordinary practitioner for whom expert assistance as a rule is immediately available for confirmation. A supply of botulism antitoxin can and should be maintained in centers accessible to the food and health officials of every section of the country. Saving the sufferer is a problem we may leave to the medical profession.

The relation of the occurrence of botulism to food production, food handling and food inspection is important to the manufacturer, the dealer, the food officer, and to the whole consuming public. In outline, our present information upon the food side of this poisoning problem may be discussed here. The researches of the past few years show that the organism of botulism is distributed very widely in America. It is necessary to find means of living in regions thoroughly contaminated with *Bacillus botulinus* (or as a synonym *Clostridium botulinum*) and yet to prevent poisoning outbreaks from its activity. Such prevention must be based upon knowledge of the nature and habits of the organisms applied to the practical problems of food handling.

The bacteriological investigations of Dickson, Mrs. Burke, Meyer and their colleagues indicate that any soil contaminated product may carry the spores of this organism into the food handling establishment. The organism has been recovered from food products

⁴ John S. Buckley and Lloyd P. Shippen. Preliminary Report on the Relation of Anaerobic Organisms to Forage Poisoning. Jour. Amer. Vet. Med. Assoc., March, 1917.

Charles Thom, Ruth Edmondson, and L. T. Giltner. Botulism from Canned Asparagus. Jour. Am. Med. Assoc., Sept. 20, 1919, Vol. 73, pp. 907-912.

George G. DeBord, R. B. Edmondson, C. Thom. Summary of Bureau of Chemistry Investigations of Poisoning Due to Ripe Olives. Jour. Am. Med. Assoc., 74 (1920), No. 18, p. 1220-1221.

Stewart A. Koser, R. B. Edmondson, L. T. Giltner. Observations on *Bacillus botulinus* Infection of Canned Spinach. Jour. Am. Med. Assoc., 77 (1921), pp. 1250-1253.

Charles Thom. Botulism from the Regulatory Viewpoint, Am. Jour. Pub. Health, 12 (1922), pp. 49-53.

Charles Thom. Botulism as Food Officer's Problem. Mimeographed and distributed by the Department of Agriculture. (Read at meeting of Conference District at Chicago and at Central Atlantic States Food and Drug Officials, Buffalo, June, 1922.)

bought in the markets⁵ of San Francisco frequently enough to justify the presumption that the spores of *Bacillus botulinus* have been consumed widely without apparent danger, in the quantities in which they occur as a contamination in ordinarily sound food after it has been prepared for the table. The food handling precautions already given for preventing infections from *B. enteritidis* and its allies appear to prevent botulism from contaminations in food used immediately. Or, stated in another form, clean food entirely fresh or freshly cooked (heated to 100 deg. C. or higher) does not appear to cause botulism. The meat poisoning cases of Continental Europe find their origin in "ripened," raw or very insufficiently cooked products and certain outbreaks in America are attributed to similar materials⁶ such as sour-milk cheese, sausage, and ham. Most of the American outbreaks have been due to food in hermetically sealed containers, hence our problem has been primarily the study of canned food as a cause of this disease. There are probably several millions of homes in the United States in which some canning is done. Commercial canning involves some thousands of establishments. The total number of lots or individual cans annually produced becomes, therefore, enormous.

Botulism from Canned Food

Botulism from canned food represents the consumption of certain samples of food contaminated with *Bacillus botulinus* as they entered the packing establishment (domestic or commercial) and which were not sterilized in handling. In addition to the spores carried by the fresh food, incubation is clearly possible in certain types of raw food. Although *B. botulinus* is anaerobic, development of its spores may occur either in symbiosis with aerobic species or where respiration of plant products in mass have produced heat and an atmosphere primarily consisting of carbon-dioxide. Spinach shipped in carloads has been observed to heat, to be "steaming" and to have foul odor in 24 to 36 hours. Similarly, corn, string beans, and peas become wet, slimy, and heat very quickly. Products in this condition furnish ample opportunity for the growth of anaerobic species. Under conditions of handling known to oc-

⁵ Meyer, K. F. The distribution of the spores of *B. botulinus* in nature. Cal. State Bd. Health, Mo. Bul., 16 (1920), No. 3, p. 38-39.

⁶ Nevin, M. Botulism from cheese. Jour. Infect. Dis., 28 (1921), No. 3, pp. 226-231.
Current Comment—More Botulism. Jour. Am. Med. Assoc., 77 (1921), No. 15, p. 1187.

Randall, G. M. Botulism. Medical Record, 98 (1920), No. 19, p. 763.

cur fairly frequently, therefore, contamination with *B. botulinus* may occasionally be excessive.

Such conditions are found in the methods of food handling encountered in markets and factories distant from the point of production. This has been clearly recognized in the directions for home-canners,¹ who have found it impossible to use vegetables from the public markets even though apparently sound except when processing with steam pressure. Upon the larger scale of the factory, the task of sterilization becomes increasingly difficult, as increased volume of business leads to the packing of raw materials shipped considerable distances in carlots or by truck. Spoiled or deteriorated raw materials, expensive sorting and lowered quality in the final product put a heavy burden or responsibility upon the packer to insure that the products used are actually fit for food. To eliminate botulism from such sources, various lines of effort are open.

Ideally every can of food should be sterilized—that would end the trouble. Thus far the aim has remained ideal for no institution has been able to guarantee sterility in every can. Faulty metal, imperfect gaskets or rubber rings, accidents, mistakes in operations, negligence, all account for the production of unsterile cans of food. Some unsterile cans contain living organisms incapable of growth under the anaerobic conditions presented, hence remain free from spoilage. If, however, the organisms are capable of growing under the conditions presented, spoilage typical of the species present follows and if this organism surviving belongs to a toxin producing species, the food becomes dangerous.

Great progress has been made by state laboratories and by several laboratories working under trade grants toward the establishment of rules of canning, product by product, which will theoretically produce sterility in every can. Such rules properly enforced will go a long way toward protecting against botulism but absolute safety of total output has not, thus far, been attained. Rules for canning must be supplemented by further precautions to eliminate the dangerous product which represents the failure of human machinery. Some inspection system becomes, therefore, necessary.

Inspection

Two general types of spoilage are encountered (1) the isolated spoiled can due to an individual accident, a single faulty seam, or gasket, or rarely to some isolated major infection, (2) the serial losses which affect

¹ Benson, O. H. Home canning by the one-period cold-pack method. U. S. Dept. Agr. Farmers' Bul., 839, p. 6.

Anonymous Home canning of fruits and vegetables. U. S. Dept. Agr. Farmers' Bul., 1211, p. 30.

Suggestions to the Home Canner

1. Only clean, fresh, sound products should be used for canning. It is hard to sterilize dirty or partly spoiled products such as stale, fermenting, souring, heating, slimy, wormy, specked or partly rotted fruit or vegetables.

2. Keep a record of every can, its contents, and methods of handling.

3. Hold all cans under observation in kitchen or pantry until you are sure they are keeping (not less than 10 days).

4. Some cans will still spoil on account of faulty containers, accidents, under-cooking or mistakes. Before even tasting, inspect every can—destroy the bad, recook cans of that lot, or cans treated in the same way and apparently good.

5. Inspection at opening time:
In tin—

(1) Both ends should be flat or curve slightly inward.

Neither end should bulge, snap back when pressed or feel loose.

Make no exceptions.

(2) All seams should be tight and clean, with no trace of leaks.

In glass—

(1) The cover should be firm—flat or concave, with seam, rubber ring and label, clean and free from all signs of leak.

(2) The contents should appear free from mold, disintegration, cloudiness or other abnormality and show no discoloration.

When opened—

Suction inward is highly desirable.

No outrush of gas or spurt of liquid should occur.

The odor, observed immediately, should be characteristic of the product.

No trace of foreign or objectionable odor should be present.

No disintegration, no mold or other abnormal appearance should be observed.

Liquor enough to cover the food is desirable in most products.

The inside of a tin can should be clean and bright, or well lacquered, not extensively blackened or markedly corroded.

If You Know It Is Spoiled, Destroy It.

If After Examining It, You Can't Tell, Add Half The Volume Of Boiling Water And Boil Thoroughly.

a considerable percentage of a lot. Isolated failures in large packs are usually recontaminations of products once sterilized, into which bacteria from outside the can enter through some fault of apparatus. Serial losses may be due to extensive failures in the containers themselves, to the im-

proper working of the closing apparatus, or to undercooking which permits organisms initially present to survive. Although *B. botulinus* contamination through faulty apparatus is possible, undercooking is believed to have been the principal cause of the presence of the organism and its toxin in cans of food.

The possibility of eliminating botulism by testing or inspection, therefore, depends upon the determination of the products and of the conditions under which dangerous packs may be expected and upon the establishment of means for picking out all dangerous cans of food. A survey of the conditions encountered in canned food which is known to be poisonous becomes significant. Our own examinations have included commercial, home-packed, or experimental cans of food rendered toxic by natural or experimental inoculation with *B. botulinus*, representing the following products: Asparagus, ripe olives, spinach, string beans, lima beans, corn, peas, salmon, evaporated milk, sweetened condensed milk, cheese, meat in various forms. Both type A and type B, the two forms responsible for the outbreaks of human botulism reported thus far in America, have been studied. In these foodstuffs, the spores of *B. botulinus* Type A have been shown to withstand fairly high temperatures, to grow under fairly wide ranges of acidity, to grow best near blood heat but to slow down gradually with lowered temperature to negligible activity in a properly handled ice box.² In these products gas is consistently produced whenever active multiplication has become well-established and more or less typical odors offensive to most persons, although perhaps not in the strict sense putrescent, are produced. A can in which active growth is found becomes, therefore, a springer first, then a swell, with odor unnatural to the product. The existence of some toxin during the incubation period before gas and

² Two general groups of *B. botulinus* have been discovered and designated as types A and B; the poisoning effect of either type is called botulism because the symptoms are not distinguishable. The antitoxin of type A will prevent botulism from the feeding of toxic cultures of type A but will not prevent poisoning from type B. Similarly the antitoxin of type B will prevent poisoning from that type but not from the other. Meyer and his colleagues have shown type A to be very abundant in the mountain region of the Pacific States, especially in uncultivated areas, and to be less abundant though widely distributed in other areas. Type B on the contrary seems more abundant in cultivated land, to be especially abundant in the central and eastern States, and to be common in Europe.

³ Unpublished results of Ruth B. Edmondson.

odor are evident is shown in certain experiments (Koser, loc. cit., and unpublished results). Pronounced gas and odor—both of which are spoilage phenomena—were found, however, where toxic organisms were well established. Similar observations have been recorded in most of the botulism outbreaks from which either, part of the food actually causing poisoning was available for study, or adequate descriptions of the food were given by competent observers. Consequently, destruction of products easily recognized as spoiled would have prevented the large majority of botulism outbreaks leaving only the poisoning cases resulting from incipient activity of *Bacillus botulinus*. The separation of spoiled cans into toxic and non-toxic groups of physical examinations is not possible. Bacteriological culture or animal experiments, or both, are necessary for that purpose. This conclusion is based upon the examination of many hundreds of spoiled cans of food both poisonous and non-poisonous by members of the Microbiological Laboratory. Destruction of all canned food in which spoilage is evident to the senses is the proper resource.

There remain for consideration that group of cases reported by various observers in which poisoning occurred from canned food in which evident spoilage was denied. Upon such reports the California State Board of Health¹⁰ bases its advice "to boil all home-canned vegetables and meats for at least 30 minutes before tasting or eating." No suggestion for inspection and no advice to destroy obviously spoiled products is coupled with it. The remedy offered is certainly sufficient to render grossly decomposed products free from the toxin of botulism and is evidently based upon the observation that some people will eat such food, hence the precautionary treatment must be efficient. How far should the same remedy apply to commercially canned products? In the outbreak of Kendallville, Indiana, from commercially canned spinach¹¹ no one of those who handled or consumed the spinach recognized spoilage. The inspectors found slight evidence of swell in the empty can. Similar reports cover a number of outbreaks from commercial products. If the advice of the California authorities is justified, it should be extended and made to apply equally to commercially canned vegetables. Manifestly this advice is designed to establish a "margin of safety" broad enough to eliminate all danger and would be efficient if followed. In dealing with such products as spinach or other "greens," corn, beans in all forms, asparagus, products which are acceptable hot, re-cooking is a commendable practice which is cou-

pled with safety. If a can of food has passed a scrupulous inspection for soundness, adding an equal volume of water and boiling for a very few minutes is an adequate precaution.

Proper precautions in the handling of food call for the development of practices, however, which will act as a control upon the operation of canning and eliminate dangerous products. For this purpose an adequate record varying with the nature of the product and the scale of operation should identify every can with its system of packing and with all others treated in exactly the same way and a system of holding followed by inspection should be used to detect under-processing. For such incubation, all or part of a large lot, or all of the lot if small should be kept at about 85 to 100 deg. F. (30-40 deg. C.). This has been found entirely practical by certain manufacturers who already incubate their entire output at blood heat while others incubate only a part of every batch handled. Whenever such a test detects under-cooking, all cans showing signs of spoilage should be removed and destroyed while the material apparently sound should be thoroughly reprocessed or repacked if the containers are faulty. Although the advice to cool after processing and store in a cool place has been given to home canners, it should be modified to provide for such an incubation period under observation. No canned food should be passed for distribution or stored for home use which would spoil if subjected to incubation for a week or so at blood heat. In this connection Lund of the U. S. Department of Agriculture Extension Service has called attention (personal communication) to the absence of botulism in the hotter areas of the South and attributed such absence to temperatures in the whole canning period high enough to insure the immediate spoilage of all under-processed cans. Cool storage, on the other hand, delays both germination of spores and subsequent development of organisms such as *B. botulinus* and may be expected to prolong greatly the incubation stage during which some toxin is present but swell and odor as evidence of spoilage are not very pronounced. Proper incubation should eliminate the individual can of this kind by hastening incubation in the home product or disclose the failure which made them possible in large lots, and thus permit corrective reprocessing before distribution has destroyed the identity of the batch.

Each step in the campaign for preventing botulism from canned food demands intelligent appreciation of the criteria of soundness and of the marks of spoilage. Such inspection makes separate demands upon the canner, the dealer and the consumer. On the basis of the discussion already presented separate inspection sheets embodying suggestions to the home-canner, to the

dealer, and to the consumer have been revised and reproduced from previous papers (No. 1, 2, 3) in the hope that tangible items systematically arranged may assist in removing unfit materials from our food supply.

Prevention of Outbreaks

Bacterial contamination followed by more or less active multiplication causes both of the types of "food poisoning" discussed. Prevention of outbreaks of either kind is dependent upon the application of bacteriological knowledge of the organisms concerned to the practical problems of food distribution and food handling. The whole subject of micro-organisms in food and our attitude toward them is thus opened with the extremes represented by those who pay no serious attention to bacteria on the one side, and on the other by those who exercise fantastic precautions for their elimination.

From the standpoint of the food control officer, if found in products other than those produced by controlled fermentation, bacteria must be classed as contaminations along with insects and dirt. They are not a part of the product itself. As with dirt, their presence to some degree may be unavoidable but their numbers and kinds and their activities as far as tolerated must be strictly within sane requirements of cleanliness, decency and substantial soundness in the products themselves. Minimal amounts of certain contaminating products are clearly filth, as has been repeatedly recognized by law and by the courts in cases involving the pollution of water and shellfish. Decomposition is directly chargeable as soon as deteriorative changes have rendered a product unacceptable for human food or produce dangerous by-products.

Dirty and spoiled foods have been generally but vaguely recognized as a menace to health but it is nearly always difficult and sometimes impossible to prove that particular samples in either condition will actually cause sickness or disease. Further, so much filthy and decomposed material is constantly eaten without ill effects that the occasional fatal or serious results have been denied or disregarded. Food and health officials insisting upon cleanliness and soundness in food products have, therefore, been repeatedly charged with advocating aesthetic fads and interfering unwarrantably with the economic operation of food industries. Certain manufacturers deliberately claim the right to use in a manufactured product any material whose original condition is not known to cause disease and will not be detectable by the consumer of the finished article.

If we admit frankly the difficulties encountered in the recognition of dangerous contaminations of food, it becomes necessary to define a sane position for handling foodstuffs which al-

¹⁰ Cal. State Bd. Health, Weekly Bul., 1 (1922), p. 19.

¹¹ Beall, C. G. Report of a botulism outbreak, Jour. Am. Med. Assoc., 79 (1922), No. 1, pp. 35-39.

ways are contaminated to some degree and may involve necessity for control. In dealing with such conditions the late Prof. H. W. Conn proposed the use of the term decency to describe requirements based upon cleanliness and soundness in food entirely separately from their relation to public health and disease. Upon such a basis, the question about a product becomes. Is its condition of cleanliness, freshness, freedom from pollution, staleness, taint, sliminess, rot or other objectionable character such that it conforms to a reasonable requirement as fit for food when seen in its raw state or when its history is known or determined by technical methods as is necessary in milk, water, shellfish, etc? From such a point of view it is clearly reasonable to eliminate from manufacture as well as from sale to the consumer directly

any food which the intelligent consumer of the finished product would refuse to eat on grounds of cleanliness or soundness if seen and examined in its raw or unprocessed form.

Suggestions for Prevention

Summarized into recommendations, the following concrete suggestions would go a long way toward the prevention of food poisoning:

1. Food to be eaten raw should be fresh, clean, sound—free from stale odors, from slimy, rotting areas, from discolorations and from mold, and should be carefully washed in an abundance of bacteriologically clean water (that means drinking water).

2. Sound food freshly cooked does not cause food poisoning.

3. Moist or soft cooked food if held more than a few hours should be kept

in a good refrigerator. If such refrigeration is impossible, the food even though showing no sign of spoilage should be recooked before serving.

4. The frequency of enteric outbreaks and of botulism clearly points to a very general failure to appreciate the dangers of bacterially contaminated and of spoiled food. Detailed suggestions for inspection of canned food are offered in connection with the campaign against botulism.

5. Responsibility for eliminating spoiled food from human consumption rests equally upon the packer, the dealer and the person who prepares it for the table. Every person handling any kind of food should be familiar with standards of quality, appearance, odor and texture of the product whether handled in bulk or in sealed containers.

Proper Procedure for State Officials in Cases of Food Poisoning

By Dr. S. J. CRUMBINE

Secretary Kansas State Board of Health

SO far as I know, no official or authoritative statement or procedure governing or directing the action of state officials in cases of food poisoning has ever been made.

Doctor Thom (paper published in this issue) has presented the problems and causes of food poisoning in a very able manner and has directed attention to procedures which, if carefully followed out by the various commercial interests handling canned foods and the housewives in preparing foods, will very greatly diminish the dangers from food poisoning. But the problem assigned to me to discuss is "The Proper Procedure of State Officials in Cases of Food Poisoning."

First of all, it is proper to state that cases of food poisoning must first be known by State officials before any procedure can be inaugurated; therefore the compulsory reporting of all cases of food poisoning should be required. The criminal cannot be apprehended unless his whereabouts is known, nor can the case of smallpox be quarantined unless its location is definitely stated together with other pertinent facts in relation to the prevalence of the disease.

Prompt Reporting of Cases Essential

In like manner, health authorities should require the prompt reporting of cases of food poisoning, not on the theory that it is a communicable disease, which it is not, but because the public interests are involved in locating the source of the poisonous food. The State of Kansas thus requires the prompt reporting of all cases of food poisoning.

The second step in the procedure of State officials would be that of making prompt investigation after receiving a report of food poisoning. It is needless to say that this investigation should be made at the earliest possible moment, and that it should be exceedingly thorough to the end that all the facts may be ascertained, samples of suspected food obtained and an immediate examination of such samples started.

At the outset I wish to give a word of caution to investigators: first, under no circumstances make a statement condemning any one food until the investigation has been completed and facts ascertained of a character that will justify a conclusion. Captain C. D. Sigsbee, commander of the battleship "Maine," which was blown up in Havana harbor and which was the immediate cause of the Spanish-American war, will be best remembered in history because of his sane, deliberate and judicial attitude at a time of great national excitement, and while under the urge of great provocation telegraphed the War Department these immortal words "reserve judgment."

Investigators of cases of food poisoning should display the same judicial temperament. The immediate members of a distressed family and their friends are usually greatly excited and often assert with a great deal of positiveness their theories as to the food that is the cause of the poisoning. Therefore, investigators should exercise mental reserve and control in order that no irreparable injury may be done to any person or food product that is not guilty of the trouble. Moreover, unless the investigator has some knowledge of the symptoms and the causes of food poisoning, he is likely to be led astray, because such investiga-

tions are not unattended with great difficulties. Popular superstitions and ignorant apprehensions concerning various types of food may prove a stumbling block; but, perhaps, a more frequent cause of error is that of blaming one or more of the vomited foods—if vomiting occurs—as it often does, as the cause of the disturbance. It often happens, particularly in the infected foods, that is, a type of food poisoning caused by the enteriditis or Gaertner's group of bacilli that one or two additional meals will have been eaten before the virulent symptoms of food poisoning take place, and thus the vomited foods are wrongfully accused.

Due to Home Preserved Foods

It is well to remember, too, that a comparatively small percent of food poisoning occurs from commercially canned foods; more often it will be found that food poisoning from canned foods is the result of improper sterilization of the home-made or home-canned product. Probably the majority of cases of food poisoning occur from foods prepared in the home due to either improper sterilization, infected food, or to improper care of foods after it has been cooked, thus permitting it to become infected.

Investigators should, also, be exceedingly careful to refrain from giving too great weight to the history of food that may or may not have had a tainted appearance or odor. It is probable that in the majority of outbreaks of food infection the food is not noticeably altered either in appearance, taste or odor.

Occasionally objectionable flavors and odors are perceptible, or a moist and soft condition of the food is evident.

Extracts from a paper read at convention of Association of American Dairy, Food and Drug Officials, Kansas City, Mo., Oct. 3-6.

BOOK REVIEWS

Practical Helps for the Dietitian Feeding Large Groups

Quantity Cookery. Menu Planning and Cookery for Large Numbers. By Lenore Richards, B.A., and Nola Treat, B.S., Assistant Professors of Institution Management, College of Agriculture, University of Minnesota. Little, Brown & Company, Boston.

Designed primarily to assist the managers of food departments in institutions, this practical treatise on large quantity cookery discusses the principles underlying the planning of menus for large numbers, standards for judging meals, types of menus, charts showing popular food combinations and then proceeds to give excellent recipes, worked out according to the requirements of from 50 to 100 individuals.

The convenient arrangement of all material should make the book especially valuable to all dietitians, whether in hospital service or in other classes of institutions. For example each recipe is tabulated according to ingredients, amount, weight, calories, unit cost and total cost.

The fact that increasing quantities of food materials in a recipe changes the relationship of these ingredients somewhat makes cookery for large numbers something beside a mere matter of multiplication. The present volume helps dietitians meet just these conditions.

Chemical Engineering Catalogue, 1922. Seventh Annual Edition. Collected, Condensed and Standardized Catalog Data of Equipment, Machinery, Laboratory Supplies, Heavy and Fine Chemicals and Raw Materials used in the Industries Employing Chemical Processes of Manufacture with a General Directory of Such Equipment and Materials, Classified and Cross-Indexed and A Technical and Scientific Books Section, Cataloging and Briefly Describing a Practically Complete List of Books in English on Chemical and Related Subjects. The Chemical Catalogue Company, Inc., New York.

In a large quarto volume of approximately 1,200 pages the Chemical Catalog Company, Inc., presents an exhaustive survey of the field of chemical engineering.

The food manufacturer will be specially interested in those sections that deal with books on food chemistry, with the equipment of food laboratories and with the details of chemical engineering in the field of food manufacture.

The catalog is a standardized book of reference, not a display of advertising matter. The listings of manufacturers form a sort of Who's Who in the realm of chemical engineering and equipment.

Purchasing, Principles and Practice. By John C. Dinsmore, Ph.B., Purchasing Agent of the University of Chicago: Lecturer on Purchasing at Northwestern University. Prentice-Hall, Inc., New York.

The chapter on purchasing supplies for the creamery industry in Mr. Dinsmore's practical book will be of special interest to manufacturers who are engaged in this branch of the food field.

Calling attention to the fact that it has been only within the last twenty years that butter has been churned and packed as it is today, the author proceeds to discuss the present system of creameries, laying special emphasis on cartons and other packages and containers.

The suggestions on watching the market so as to take advantage of the best conditions, etc., are very illuminating.

Other industries are taken up in detail. The book is a valuable handbook for the executive.

A New Bread That Provides a Rich and Easily Accessible Source of Vitamines

GERMOS BREAD, Its Nutrients, Vitamines and Physiological Value. By David Chidlow. Pamphlet. James Strachan, Limited, 246 City Hall Avenue, Montreal, Que.

A new breadstuff, called Germos bread, has been compounded of approximately eighteen parts of wheat embryo and eighty-two parts of white flour. This bread is described in a pamphlet published by James Strachan, Limited, Montreal.

David Childow, author of the pamphlet, begins by describing the various experiments performed by McCollum, Mendel and other physiological chemists for the purpose of establishing the need for vitamines in the human system, and then proceeds to give somewhat in detail, the results of vitamin deficiency.

The second portion of the pamphlet is given over to a consideration of Germos bread, its composition, with particular emphasis on the vitamin content, a comparative study of Germos bread and white bread, closing with a study of the place of Germos bread in the dietary.

Other Books Received

The Up-to-Date Waitress. By Janet McKenzie Hill, Editor American Cookery. Little, Brown & Company, Boston.

The Healthy Baby. By Roger H. Dennett, M.D. The Macmillan Company, New York.

Health Education and the Nutrition Class. By Jean Lee Hunt, Buford J. Johnson, Ph.D., and Edith M. Lincoln, M.D. Dutton & Company, New York.

Standardization of Fruits and Vegetables Receiving Great Attention

Renewed interest in the standardization of fruits and vegetables is manifested just now in producing and shipping circles. This is due, says the United States Department of Agriculture, to the large crops this year. Growers realize that with plentiful supplies only products of high, uniform quality can be successfully marketed.

Wisconsin under authority of the State Marketing Law has promulgated standard grades on potatoes, apples and cabbage and in cooperation with the United States Department of Agriculture has provided an efficient force of inspectors who issue certificates as to the grade and condition of the products at time of shipment. This work is carried on under the joint authority of State and Federal laws. A similar arrangement has been made with the New Jersey Bureau of Markets which has also promulgated the United States potato grades as the official State standard. Several large New Jersey shipping associations have applied this year for State-Federal grade certificates on their entire output.

Nebraska has adopted the United States grades and has undertaken the task of inspecting every carload of potatoes shipped.

Work Going On In 18 States

At the present time the United States Department of Agriculture has entered into cooperative shipping point agreements with 18 States: California, Colorado, Utah, Washington, Oregon, Idaho, Montana, North Dakota, South Dakota, Wisconsin, Ohio, Missouri, New York, Pennsylvania, Virginia, New Jersey, Massachusetts, and Maine. In practically all cases the inspectors base their reports on the United States grades.

Last year the California State Department of Agriculture inspected some 15,000 carloads of produce at the request of shippers. The Colorado Division of Marketing which entered the field late in July, 1921, officially promulgated the United States grades for practically all products. Under the Colorado law the service is compulsory, and during the first calendar year with a force of 50 men a total of approximately 25,000 carloads of perishables were inspected as to grade and condition. Colorado and Nebraska are the only states at the present time which have put the state certificate on fruit and vegetable shipments on a compulsory basis. Wisconsin tried this plan last year but for a number of reasons reverted to the practice of furnishing certificates on request only.

Growers who grade their products carefully will inevitably establish a reputation for themselves that will have continuing commercial value, says the department.

Foodstuffs Around the World

Items of News Gathered by the Representative of the Department of Commerce

Can Conquering Cow in England

The use of foreign canned and dried milk in England has increased to the extent that it is threatening the dairy industry of that country. The daily consumption of fresh milk has dropped to less than one-quarter of a pint per person, says a report from Consul John F. Jewell, Birmingham.

Smyrna Fruits Not Destroyed

Damage to the Smyrna fruit crops is far less than at first reported, says a cablegram received at the Department of Commerce from Rear Admiral Mark Bristol, in command of the American squadron in Neast East waters. According to Admiral Bristol, manipulation and cultivation of figs are conducted almost exclusively by the Turks, and therefore the evacuation of the Greeks caused very little disruption to the industry. The peasants are now returning to their homes and the gathering is being continued.

Coffee and Cocoa Exposition in Venezuela

An exposition will be held at Caracas, Venezuela, Dec. 19, 1922 to Jan. 7, 1923, of interest to the American coffee and cocoa trade and allied industries. American Consul Thomas W. Voetter, of Caracas, states in a report received by the Department of Commerce that this will be an excellent opportunity for those interested to obtain information regarding the qualities of the various grades of Venezuelan coffees. It is believed that American appliances and machinery used in preparing, sacking, and shipping coffee, fertilizers, etc., would be of interest to the Venezuelans.

Vegetarian Roumanians Demanding Meat

One of the results of the war to the Roumanians has been the gradual shifting of their appetites from a vegetarian basis to that of meat consumers. Roumania is pre-eminently a grain producing and consuming country, but the increasing prosperity of her peasant class has tended greatly to increase the importance of cattle raising for food and export, as well as the manufacture of food products with an animal basis, says Acting Commercial Attache Van Norman. The good fortune of the peasants, however, is not reflected in the lives of the city population, who are still so badly pressed for a living that the government has prohibited meat exports.

New Zealanders Calling for Canned Oxtail Soup

American soups have invaded far-off New Zealand and have been firmly adopted, says Vice Consul Morgan, Wellington. Oxtail, tomato and vegetable seem particularly favored by the bushmen.

Ireland Importing Condensed Milk Direct

One third of Ireland's condensed milk imports are now going direct to Ireland instead of being shipped to England and then sold to the Irish, according to American Consul William P. Kent, Belfast. Of the six hundred tons of this article imported during the first six months of this year, nearly 200 came direct from foreign countries. Last

year during the same period but 60 tons came direct.

Japanese Eating Jam for Breakfast

Along with the other modern ideas acquired by Japan during the last 50 years, that country has taken a firm hold on the use of canned foods. The Japanese have gradually acquired a taste for canned fruits, vegetables, jams, etc., although they have a distinctive diet and do not naturally like our preserved fruits and jams. According to Consul E. L. Dickover, Kobe, in a report to the canned foods unit of the department of Commerce, a constantly increasing number are now breakfasting on bread and jam, milk, eggs, etc., in place of the native breakfast of "miso" soups, beans, pickles, and rice.

Bouillon Cubes Popular in Spain

So fond are the Spaniards of soup that they would consider no meal, except breakfast, complete without soups the first course, but it comes iced—iced—consomme being a particularly tasty article to a Spaniard. Vice-Consul Johnson has sent the department of Commerce a report with samples on the popularity of bouillon cubes in Spain.

New Rival for Wheat Flour

According to Consul Bohr, Cienfuegos, Cuba, a company has just been formed for the purpose of making flour, starch and other products from cassava, which grows profusely in warm climates. Cassava root has been used for years by the Indians who produced a flour by most primitive methods, and the new company is to import machinery from Brazil which will allow the production of cassava flour by up-to-date processes. A mixture of cassava with from one-sixth to one-third wheat flour, it is said, produces a wholesome and palatable bread.

Germany Buying Cheap Australian Meat

Australia within the last few weeks has sold over 16,000,000 pounds of frozen beef and 400,000 pounds of frozen mutton to Germany, according to a report from the consulate at Sydney. Australians hope that this is a forerunner of a future business which will ease-up the gloomy meat outlook on the island continent. France is inquiring in Australia for frozen lamb, and it is understood that it has bought lamb in South America. Australia is also giving increasing attention to the Japanese markets.

Argentine Meats Going to Russia

The co-operative society "Khleboprodukt" has purchased in Argentina 5,000,000 pounds of meat, for which purpose it has been allotted 500,000 gold rubles by the government. The remaining balance of the cost of the meat will be covered by exports of lumber and wine to Argentina. The transaction will be in the hands of the State Trade Department, according to a dispatch from Trade Commissioner Young, Riga.

Sugar Ration Cards in Hungary

War-time sugar ration cards are to be reintroduced to the Hungarians according to a recent decision of the Public Provisioning Council, Consul Kemp, Buda-

pest, informs the Department of Commerce. Insufficient sugar crops in Hungary are responsible for this action, the government to maintain control over the prices, import, distribution and consumption.

How they make "Home-Brew" in Rumania

Rumanian prunes are beginning to make themselves felt in certain sections of Europe as growing competitors of our California prunes in European markets, according to a report from Commercial Attache Van Norman, Bucharest, in a report to the Department of Commerce. Perhaps the greatest use for prunes to the Rumanian is in making "Zweeka," an alcoholic beverage containing about 15 per cent alcohol. This is very much liked by the Rumanians and takes the place of whisky in that country. The total prune production of Rumania is about 350,000 hectolitres. Approximately 600 prune trees are cultivated upon each hectare of land.

Austrians Buying Fuel in Preference to Food

Fuel for the winter is a more pressing demand upon the Austrian just now than such a luxury as condensed milk, and they must use all available money for the purchase of coal and wood, says Consul Carol H. Foster, Vienna, in a report on the Austrian market for condensed milk. Sales of condensed and evaporated milk have fallen to practically nil, but experts state that there is great likelihood of a lively market for this article later, as many cows have been slaughtered this summer for beef, with a resultant falling off in the Austrian production of fresh milk.

The Tragedy of China's Tea Trade

The decline of China's tea trade is the greatest commercial calamity that has befallen that country, and one for which there is little justification, says Consul General Cunningham, Shanghai. Ceylon and India have been wise; the Chinese have been slow. They have failed to read the signs of the times, with the result that their former great tea trade is passing to their southern neighbors. Green, black and brick tea are still being exported from China, but in pitifully small quantities compared to the hundred of millions of pounds exported when the Chinese tea industry was in its prime.

New Mexican Fruit, Combination of Peach and Almond

A new fruit combining the luscious taste of the peach and the tang of the almond has just been produced by Dr. Juan Balme, plant wizard of the Mexican horticultural department, after years of experimenting. Seven years ago, Dr. Balme began the work of fertilizing the blossom of the peach with the pollen of the sweet or edible almond, says a report just received by the Department of Commerce from its representative in Mexico City. Prior to this he imported from the United States trees of a fine, juicy sweet freestone



Back to Nature!

Nature put into two foods—the whole wheat berry and milk—practically everything needed for normal human nutrition. These two great foods are now combined in a delicious new whole wheat loaf

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"Nothing Added—Nothing Taken Away"

WARD'S HOMESPUN BREAD is made from whole wheat flour *only*, specially milled from the highest grade No. 1 Northern Hard Spring Wheat. It is a loaf supreme in food-value and delicious in flavor—a real whole wheat bread, not just a name. A pound and a half of pure nourishment.

HOMESPUN is the result of four years of research work by the technical department of the Ward Baking Company in

the effort to produce an honest, perfect and palatable loaf of 100 per cent Whole Wheat Bread—an effort now crowned by complete success, as evidenced by the remarkable popularity of the new loaf.

"A noble loaf. . . . A more honest bread has never been baked. This is the public's opportunity to prove that it really wants bread perfection."—ALFRED W. McCANN, in the *N. Y. Globe*.

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"More like a conservatory than a factory," said one woman visitor to the Beech-Nut model food plant, viewing the pure white interiors relieved by the cool green of potted ferns. Then she added, "Nature's two favorite colors—the

only two she actually clothes *herself* in."

And Beech-Nut products and processes are just as clean and wholesome inwardly as they are outwardly. Plump tomatoes fresh from the vine; carefully graded No. 1 Michigan and New York State beans; genuine semolina of hard durum wheat for our macaroni; No. 1 Spanish and Virginia peanuts—these are some of the guarantees of Beech-Nut purity and flavor.

In the interests of the pure food movement, the Beech-Nut Packing Company will furnish without cost macaroni and peanut butter exhibits to domestic science teachers, dietitians and others engaged in the dissemination of pure food information.

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(Originators of Evaporated Milk)

General Offices, St. Louis

Milk at its Best

peach and of the fine paper-shell almond grown in California. What Dr. Baime has done is to eliminate the useless bitter kernel of the peach and substitute in its place a valuable article of commerce. The new seed looks like the edible almond, and, while a little thicker than that on its maternal ancestor, the shell has the fibre of the almond shell and the kernel is of the size, consistency and taste of the edible almond. The flesh of the new fruit is sweet and juicy and agricultural experts think it superior in delicacy or flavor to its paternal ancestor, the peach. The new fruit is called the Peachmond.

American Lard Being Boycotted in Switzerland

American lard in Switzerland is fighting a losing battle according to a report received by the Department of Commerce from Consul A. B. Lane, Berne, Switzerland. Two of the largest concerns in Switzerland which manufacture vegetable cooking fats are controlled by French and Dutch capital who, nevertheless, advertise their products as "genuine Swiss." The Swiss are urged by these concerns to "expel the American lard from our kitchens" in view of the fact that "our watches, needlework, etc., are not bought in America at present." These foreign capitalists it is said have also prevailed upon the Swiss grocers' associations to request the American exporters under threat of a boycott to discontinue holding stocks of American lard in Switzerland. The Swiss and the American governments are powerless to act in the controversy.

Strict Supervision of Australian Jam Exports

Australian fruitgrowers are deeply concerned regarding the future of their industry owing to the serious falling-off of the exportation of Australian canned fruits and jam during the past three years, says Consul General Thomas Sammons. From eight million dollars a year, Australia's canned fruit export has dropped to about a fifth of that figure. To raise the standard of Australian fruits for export and to assist growers, the government has inaugurated a thorough inspection service, where all the canning, grading, labelling, and packing is now carried on under expert supervision, and exportation of canned fruits is prohibited unless they are prepared and graded to the satisfaction of the customs department.

Nut Prices High In Italy

Italy's 1922 almond crop has proven to be an excellent one and will probably reach about 15,000,000 kilos, says Consul E. L. Natuan, Palermo. Filberts are a disappointment, owing to heavy frosts and winds during the flowering season, and will not exceed 6,000,000 kilos. Two million kilos of last year's filberts are still on hand, and not more than 500,000 kilos of almonds; 33,600 kilos of pistachios are expected. Prices of almonds will remain high for some time, due to the heavy commitments of some of the largest exporters in Sicily, who speculated on old stocks. Owing to the small carryover these commitments will have to be met from the new crop.

Fighting the H. C. of L. for Fifty Years

Celebrating its fiftieth anniversary, the St. Gall Consumers' Association has just given a huge banquet to its 9,901 shareholders and employees at St. Gall, Switzerland, where a report of its life and struggle for half a century was read.

Organized in 1872 for the purpose of supplying the public principally with foodstuffs and the necessities of life at a minimum price, without the intervention of the middle man, this association is but one of many such successful societies in Switzerland, says Consul Willrich, St. Gall. The association had two splendid buildings in St. Gall and branch establishments at other places in that and other Swiss cities. It is growing from year to year, and keeps down the prices of foodstuffs to a reasonable level.

Swiss Cider Presses Working Nights

Enormous fruit crops this year in Switzerland threaten to bring about a revolution in the old methods of handling

and disposing of fruit, says a report from Consul Willrich. The markets in the different cities are flooded beyond precedent with apples, pears, grapes, and prunes. The orchardists do not know how to cope with the magnitude of their harvest. Owing to peculiar conditions existing on the continent, Switzerland is not able to export fruit in quantities, and the cider presses are working day and night to absorb some of the supply. In view of the present circumstances, new methods must be found and adopted to prevent in subsequent years the great waste and loss to the Swiss fruit growers which will be unavoidable this year.

Pork and Beans Are Popular in Europe

Europe, However, is Generation Behind United States in Use of Canned Vegetables

Europe is fully a generation behind the United States in the use of canned vegetables. This fact is accounted for largely through fixed dietary habits and an inveterate prejudice against the consumption of tinned foods which existed up to the outbreak of the war. While this prejudice has been considerably worn down through the wide war-time distribution of canned milk and meats, dietary habit still prescribes either fresh vegetables or none at all, says Special Agent Alfred P. Dennis, in a report from Berlin. Unless these peoples can be taught to cultivate a liking for new foods neither poverty nor food scarcity will provide a sufficient stimulus for their introduction.

Certain vegetables, such as corn on the cob and sweet potatoes, which are popular in the United States are wholly unappreciated in Europe. It is not worth while to advertise the merits of a preserved vegetable among a people which dislikes it in its raw state, and a good deal of confidence would be required to undertake a pioneer effort to introduce canned corn in northern Europe. Even in Italy and Yugoslavia, where corn is produced on a rather broad scale, the grain is ground into meal and is so eaten by the native population.

Spain, Italy, and France all go in for raising early spring peas, and the small tender green peas packed in France have a world-wide reputation for excellence. Italy, which for some years has been shipping raw peas across the border to be packed in French factories, is now undertaking to compete with France in the canned-pea business. Roughly speaking, there is without a doubt a big potential market for the best-quality peas such as are now being packed in France and Italy. Lima beans are freely raised in Europe, but the chances for building up a trade in canned stock is not good unless there is strict grading and the delicate green young beans separated from the hard mature stock. The observations made on green peas and lima beans hold true for string beans. The European consumer has no use for overgrown string beans. The Italians are making quite a success of earning string beans grown on the volcanic soil around the base of Mount Vesuvius, and this success pivots on the fact that great care is exercised in selecting young, tender, and delicate stock for processing.

Pork and Beans Have a Wide Appeal

American pork and beans, widely distributed throughout the allied countries during the war, found ready appreciation; in other words, there was a groundwork of popular habit to build upon. With the exception of the British, Dutch, Germans and Scandinavians, Europeans are perforce more vegetarian in habit than Americans. They cannot afford meat. These great populations, living precariously on a narrow margin of subsistence, are accustomed to eke out their vegetable diet with a bit of nub of the thick vegetable soup which cheese or fat pork, this forming the is the dietary mainstay of countless European households. A combination of pork and beans finds popular response in dietary habit, and this trade ought to be capable of a good deal of expansion.

White asparagus tips as put up by American canners occupy a position of undisputed superiority and sell readily as a luxury article in the principle European markets, particularly London. This is one item in the canned-vegetable trade in which American exports are limited by lack of productivity rather than by lack of foreign markets. American canned tomatoes sell fairly well in western and northern Europe, being used principally as a stock for sauces and other condiments, but Europeans complain that a can of American tomatoes contains overmuch water, and the stock undoubtedly suffers in comparison with the firmer and meatier Italian plum tomato, which gets to the customer in its original shape rather than in a pulpy mass.

Suggestions as to Pioneer Work

Even the most important of American individual canners would not be in a position to expend the necessary time and funds required for any notable expansion in European trade. This could be done effectively only through cooperative effort; that is, by forming canners' export sales associations with authority to establish agencies abroad. Introductory methods naturally would be concerned first with the fashionable-hotel trade, then with advertising, along with the stocking of the big chain grocery stores. England and northern Europe are the best fields for pioneer work; Spain is a thin market at best for imported food products, and France and Italy are competitors in, rather than customers of canned vegetables.

The "ATLAS" Label

Protects You

It Has Stood for Highest Quality and
Uniformity for Over Half a Century

"Atlas" Certified Food Colors	"Atlas" Carmine No. 40	"Atlas" Pure Vanilla Ex- tracts, Emul- sions, Etc.
"Atlas" Vegeta- ble Colors	"Atlas" Genuine Fruit Extracts	

Manufactured at Our Works in Brooklyn, N. Y.
Correspondence Solicited, Prices and Samples Submitted

*First Producers
of Certified Colors*

H. KOHNSTAMM & CO.

ESTABLISHED 1851

NEW YORK

CHICAGO

NUCOA

"The Wholesome Spread for Bread"

1922 NUCOA SALES

Dealers handling NUCOA ex-
clusively are enjoying a good
business. We are honest when
we say there is no substitute
for NUCOA.

Exercise the same care in stock-
ing margarine you do creamery
butter. NUCOA is the an-
swer.



THE NUCOA BUTTER COMPANY

NUCOA BUILDING

23rd St. at Fourth Ave.

New York City



From a
drawing by
ELIZABETH SHIPPEN
GREEN ELLIOTT

*Do you choose her oatmeal
as carefully as her milk?*

YOU wouldn't think of giving your baby "any
old milk."

But when you say, "I want a package of 'oats,'" aren't you forgetting that there is also a great difference in *oats*?

Specify H-O (Hornby's Oats), the only oats especially prepared for the food-needs of children by steam-cooking and pan-toasting.

Steam-cooking in closed kettles under high pressure breaks down the starch cells and dextrinizes the starch, thus making H-O (Hornby's Oats) digestible and nourishing.

Pan-toasting in the old-fashioned way over deep coal fires makes H-O golden-brown in color and gives that delicious H-O flavor.

Every home can afford H-O. Health is cheap at any price.

THE H-O CEREAL COMPANY, INC.
BUFFALO, N. Y., AND Ayr, CANADA

Also Makers of
FORCE Whole Wheat Flakes PRESTO Self-Rising Flour



H-O is packed in new improved label-wrapped and corner-sealed package

This H-O advertisement is appearing this month in the following publications: Ladies' Home Journal, Pictorial Review, Good Housekeeping, American Magazine, Sunset, Scribner's, Harper's, and American Cookery.

Association and Convention Calendar

American Association Creamery Butter Manufacturers, Continental and Commercial Bank Building, Chicago. Annual meeting at La Salle Hotel, Chicago, Nov. 28. Secretary, George L. McKay.

American Bakers' Association, 1135 Fullerton ave., Chicago. Business manager, H. E. Barnard.

American Chemical Society, 1709 G street, N. W., Washington, D. C. Secretary, Charles L. Parsons.

American Corn Millers' Federation, 332 South La Salle street, Chicago. Convention in November. Secretary, T. M. Chivington.

American Dietetic Association, Secretary, Breta Luther, Children's Hospital, Boston, Mass.

American Macaroni Manufacturers' Association, 26 Front street, Brooklyn, Secretary, Edward Z. Vermeylen.

American Manufacturers' Association of Products from Corn, 208 South La Salle street, Chicago. Annual meeting early in the year. Secretary, Dr. W. P. Cutler.

American Specialty Manufacturers' Association, 53 Park place, New York. Next meeting in Atlantic City November 15, 16 and 17. Secretary, H. F. Thunhorst.

Association of Operative Millers, Postal Telegraph Building, Kansas City, Mo. Next convention, June 4 to 9, 1923. Secretary, M. F. Dillon.

Biscuit and Cracker Manufacturers' Association of America, 90 West Broadway, New York. Convention May, 1923. Secretary, R. T. Stokes.

Flavoring Extract Manufacturers' Association of the United States. Date of next convention to be set in January. Secretary, Gordon M. Day, Day-Bergwall Co., Milwaukee, Wis.

Institute of American Meat Packers, 509 South Wabash avenue, Chicago, Secretary, W. W. Woods.

National Coffee Roasters Association, 64 Water street, New York. Convention in New Orleans, Nov. 22 to 24. Manager, Felix Coste.

National Association of Ice Cream Manufacturers, 155 North Clark street, Chicago. Secretary, N. Lowenstein.

National Canners' Association, 1739 H street, N. W., Washington, D. C. Next convention at Atlantic City, N. J., the week of January 22, 1923. Secretary, Frank E. Gorrell.

National Confectioners' Association, 11 West Washington street, Chicago. Convention at Atlantic City, May 23, 24 and 25, 1923. Secretary, Walter C. Hugnes.

National Dairy Council, 910 South Michigan avenue, Chicago, Ill. Annual meeting, Dec. 7, Chicago. Secretary, M. O. Maughan.

National Dairy Union, 630 Louisiana avenue, Washington, D. C. Secretary, A. M. Loomis.

National Food Brokers Association, 326 West Madison street, Chicago. Convention to be held simultaneously with conventions of National Canners' Association and the Canning Machinery and Supplies Association, at Atlantic City, N. J., the week of January 22, 1923. Secretary, Paul Fishback.

National Macaroni Manufacturers' Association, Braidwood, Ill. Next meeting, June, 1923. Secretary, M. J. Donna.

National Milk Producers' Federation, 1731 I street, N. W., Washington, D. C. Annual convention in November. Secretary, Charles W. Holman.

National Paper Box Manufacturers' Association, 112 North Broad street, Philadelphia. Annual convention, May 9 to 11, 1923, Claypool Hotel, Indianapolis, Ind. Secretary, William W. Baird.

National Pickle Packers' Association, 326 West Madison street, Chicago. Meets with National Canners' Association at Atlantic City, January 22, 1923. Secretary, F. A. Vickers.

Rice Millers' Association, 609 Maison Blanche Annex, New Orleans, La. Convention, May 31, 1923. Secretary, F. B. Wise.

The bureau is now taking figures on the monthly production of shoes and on stocks of hides, skins and leather, also upon the amount of sugar refined, and about a dozen other commodities are now under consideration. It is believed in the department that the taking of the figures of production of canned goods will be of value to those engaged in the industry, but the work will not be undertaken unless the sentiment is practically unanimously in favor of it.

Bumper American Pea Pack for Export

All existing records have been broken by the 1922 American pea pack, according to statistics just furnished by the National Canners' Assn. A total pack of 13,042,000 cases of peas was put up by American canner during the season just closed, practically double the pre-war average. With the failure of the French pea crops and a pack of petits pois far below normal, there is every indication that foreign markets will absorb a big percentage of the large American pack, especially of the fancy grades.

Attacks Guarantee Against Decline

Federal Trade Commission Issues Complaint Against Michigan Wholesale Grocers

In a formal complaint against the Michigan Wholesale Grocers' Association, the Federal Trade Commission charges the association with coercing manufacturers from whom its members purchase commodities, into guaranteeing their prices against decline. The complaint outlines that the names of all manufacturers, who guarantee against decline in sales to members and others which come to the notice of members are reported to the association, which compiles a list. This list is forwarded to all members of the association for their information in making purchases. The complaint also charges that this list is exchanged with other similar associations.

"The association," the complaint charges, "by means of letters, personal interviews and in other ways urges, and seeks by intimidation, to coerce various manufacturers who do not so guarantee against decline, into adopting said practice and notifies the members of its action in that behalf, urging the members to co-operate with the association in that regard by individually bringing similar pressure to bear upon said manufacturers."

It is pointed out that the members bring similar pressure to bear upon the manufacturers to cause them to adopt this practice and that success or failure in these coercive efforts is reported by the association to the members and by members to the association. The names of manufacturers who adopt this practice of guaranteeing against decline are added to the list of names of guaranteeing manufacturers and in making current purchases of the products in which they deal the members use the lists and information received.

Million Tons of Tomatoes Preserved This Year

More than 1,000,000 tons of tomatoes will be canned or will enter into such products as catsup, pork and beans, etc., this year, according to the estimate of the United States Department of Agriculture. The department's figure for 1922, 1,001,010 tons, is 132 per cent more than last year's consumption, 432,756 tons. Reports to the Department of Agriculture indicates that 9,335,000 cases of No. 3 cans will be packed this year compared with 5,050,000 cases in 1921. In production, Indiana leads with 271,534 tons of tomatoes, followed by California with 173,786 tons, Maryland with 111,510 tons and New Jersey, New York, Ohio, Missouri, Delaware and Utah with less than 100,000 tons each.

F. W. Delaney Appointed Sales Manager of Runkel Bros.

F. W. Delaney, recently New York sales and advertising manager of the Sun-Maid Raisin Growers, has been appointed sales manager of Runkel Bros., Inc., New York, chocolate and cocoa manufacturer. Mr. Delaney was at one time with Cudahy & Company, Chicago, as sales manager of their canned foods department.

Monthly Census of Canned Goods May be Undertaken

A monthly census of the production of canned goods is under contemplation in the Census Bureau, and manufacturers of those articles will be asked in the near future to give their ideas upon the advisability of undertaking such work. A questionnaire will be sent out, in which the producers will be asked whether they favor the collection of monthly production figures; whether the records of producers are in such form that it is possible for them to furnish such data without much cost or inconvenience, and whether it is believed that a monthly publication of such statistics would be of value to those engaged in the industry.

Whether the work will be undertaken by the Census Bureau at this time depends entirely upon the sentiment expressed by the industries involved. The taking of such figures by the Director of the Census was authorized under a blanket act passed by Congress about a year ago to enable the Secretary of Commerce to make such inquiry into production, stocks, distribution, etc., of various commodities as he deemed necessary for the conduct of his department.

Purity

Nut MARGARIN

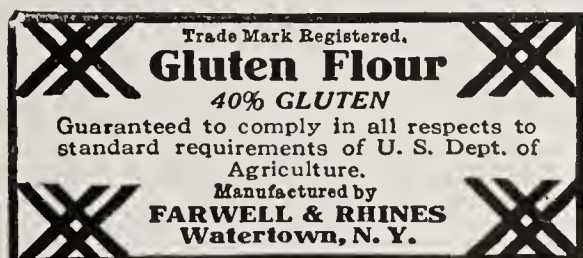
The Health Margarin

PURITY NUT is made from purest vegetable oils, sweet, pasteurized milk and a dash of salt.

Not only does its economy warrant use without stint; PURITY NUT is so wholesome and nutritious that it is a vim- and health-food of exceptional value.



THE CAPITAL CITY PRODUCTS CO.
Columbus Ohio
Makers of COLUMBUS Margarin



Plum Pudding—

A Seasonable Suggestion

Made in the spotless Libby Kitchens, this old English recipe has become a favorite on American tables. Like all the other Libby Products it is unequalled in wholesomeness, purity and flavor. It can be obtained in sizes suitable for individual or family servings.

Libby, McNeill & Libby
Chicago

Libby's

Aroco Brand Raw Oysters

Grown on certified beds in Northern waters, opened and packed under sanitary conditions, sealed in sanitary enameled individual consumer cans. Each package bears our name guaranteeing that solids and food values are conserved and adulteration prevented.

THE ANDREW RADEL OYSTER COMPANY
SOUTH NORWALK, CONN.

31 NORTH STATE ST.

ESTABLISHED 1893

CHICAGO, ILL.

THE COLUMBUS LABORATORIES

COMMERCIAL - FOOD - MILLING - BAKING - MEDICAL ANALYSES

X-RAY LABORATORY—IN ALL ITS BRANCHES

Chemistry and Bacteriology Applied to Manufacturing Processes, Patent Matters,
Legal Affairs and Industrial Problems

Flour, Grain, Feeds and All Kinds of Food Analyzed for Purity, Quality,
Composition and Preparation

WATER AND MILK ANALYZED—SANITARY PROBLEMS STUDIED AND CORRECTED

DRUGS AND MEDICINE ANALYZED FOR STRENGTH, PURITY AND COMPOSITION

DISINFECTANTS AND GERMICIDES EXAMINED FOR STRENGTH

EXPERT STAFF OF CONSULTANTS—COURT AND EXPERT SERVICE

TO GUARD YOUR HEALTH USE OUR ANNUAL "KEEP WELL SERVICE"

New Fig Products Being Introduced by Growers

For the first time in the history of the fig industry, a nationally advertised list of fig products has entered the American market and is in the process of being distributed to the dealers of the United States. This distinction goes to Fresno, California, as the center of the American fig business, with the completion of plans by the California Peach & Fig Growers to extend their campaign of advertising to include fig products as well as Blue Ribbon dried peaches. Linked up in a comprehensive national campaign of advertising with Blue Ribbon dried peaches, Blue Ribbon dried figs, fig meat, Fig Brownies and Purple Ribbon fig products are finding their way into the cities and towns of the country, marking the first appearance of this fruit in some towns. According to the association officials the popularity of the new products is attested to by the number of requests for new recipes and other literature.

The 1922 advertising campaign of the California Peach & Fig growers is founded upon the healthful qualities of dried peach and fig products. The key slogan is "Keep Your System Regulated" and the general advertising tone carries the message of health and vigor to the consumer.

The association is utilizing the columns of five of the leading women's magazines and starting in October will carry on the campaign for six months. These continuous full page advertisements will reach over fifteen million readers and will offer recipe books and other literature to the housewives.

What is considered one of the most important phases of this year's activities is the department engaged in co-operation with retail dealers for a tie-up with national advertising. A complete window trim has been designed and is being distributed free which harmonizes with association advertisements. The products being stressed this year in addition to dried peaches are Blue Ribbon bulk figs for stewing, Fig Brownies in bulk and packages, Blue Ribbon fig meat, a new product designed for economy in cooking, Blue Ribbon fig pie, and Purple Ribbon fig products in tin and glass.

Potato Flour Output of Germany Drops

Germany's potato crop, two-thirds of which, prior to the war, was used as stock food and in the manufacture of alcohol, starch and potato flour, has suffered a more severe injury as a result of the war than has any other of the major agricultural crops, says a recent report of the Foodstuffs Division, Department of Commerce.

"The reduction in the potato yield," says the report, "has broken down prosperous industrial enterprises as well as seriously affecting the internal food situation." The potato-flour and potato starch industries have been reduced to 10 per cent of their former output and the alcohol industry is forced to import corn at high prices, instead of, as before the war, producing about 80 per cent of its alcohol from potatoes. Of this corn the United States, says the report, supplies about as much as all other countries combined.

Today, the bulk of the German potato crop is being consumed as human food. The substitution of potatoes for bread

is said to be increasing and while much foreign corn is being imported by the alcohol industry, the increased household consumption of potatoes tends to cut down purchases of foreign bread grains. The coming potato crop has been estimated to show an increase of at least 4,000,000 tons over the crop of last year, but the bulk of this increase will probably be absorbed by the increase in household consumption.

Before the war there were about 6,000 distilleries in operation using about 2,500,000 tons of potatoes annually. The loss by Germany of the Posen district to Poland meant a decrease of the potato-alcohol capacity of about 25 per cent. Since the war with the thought of human and animal food supply uppermost, the Government has limited the price which the alcohol manufacturers may pay for potatoes in order to conserve the supply for food.

The once flourishing potato flour industry has declined to negligible proportions. The industry, which was started in 1903 with three driers in operation, in 1910 reported 327 factories consuming 400,000 tons of potatoes annually and producing 100,000 tons of product and in 1917, the high point of the industry's growth, there were 870 drying factories in operation. In 1919, the potato flour industry reported only 677 dryers in running order using 1,000,000 tons of potatoes and producing 250,000 tons of dried product. In 1920, the potato shortage and the high cost of coal completely demoralized the industry and most of the plants were closed. Last year the dryers were practically all idle and the Government is still discouraging the manufacture of potato flour, which at present coal and potato prices costs more than wheat or rye flour.

Prior to the war, there were 350 factories in Germany manufacturing potato starch, consuming about 1,500,000 tons of potatoes and turning out about 300,000 tons of starch and starch derivatives, such as sirup, starch sugar, and dextrine. This industry has been placed under Government supervision, but despite this effort to conserve an essential food, it has declined so that last year the factories were running at only 10 per cent of capacity. Starch exports and derivatives in the last peace year were 62,000 tons, while from May, 1921, to May, 1922, only 203 tons of potato starch were exported.

Armour & Company Retain Unrelated Lines Until May

The order of the Supreme Court that Armour & Company be given until May 1, 1923, to sell its unrelated lines in the grocery trade was recently sustained by Justice Bailey, when the National Wholesale Grocers' Association made an effort to have the order rescinded. Counsel for the association insisted that the extension should not be permitted to stand. The attorney for Armour & Company, Conrad Syme, stated the company had made efforts in good faith to dispose of its unrelated lines. As evidence, he pointed out that the volume of its grocery operations had decreased from \$10,000,000 annually to less than \$5,000,000. While some canned goods had been purchased in the market, he said, it had been done to keep the business going, so that the plants might be sold at a reasonable price next spring.

Germany Suffers Loss of Export Trade in Sugar

Germany will never again be able to export 1,000,000 tons of sugar, as it did before the war, according to a report recently received by the Department of Commerce on the German sugar industry. "Perhaps 10 years from now it may have a surplus of 500,000 tons," says the report, "but for the immediate future it will have all it can do to supply domestic needs. This last year it was unable to do even that; imports of 150,000 tons were necessary to cover absolute requirements."

Germany attained a prewar production capacity of 2,700,000 tons of beet sugar, which meant a surplus for export of approximately 1,000,000 tons. Actually, Germany exported 1,110,073 tons in 1913. For the past seven years Germany has been entirely out of the export trade. This loss of a trade in 1,000,000 tons of sugar annually is of particular interest to the sugar trade. Germany is estimated to have lost by cession of territory through the treaty of Versailles more than 700,000 tons of her capacity. In the territory ceded to Poland alone, Germany is stated to have lost 296,400 acres of beet-sugar land and upward of 30 factories.

In addition to her loss of territory, last year's drought caused a short crop of beets and as a further check to production there are labor difficulties and soil deterioration. The labor difficulties are largely the result of high wages paid industrial labor, which have bred discontent and restlessness among German farm hands.

To Protest Against Decision in Alcohol Case

Protest against the 25 per cent liquidated damages which is called for in the new Treasury decision 3398, governing users of non-beverage alcohol, is being urged upon members by the Flavoring Extract Manufacturers' Association. The most important feature of this decision, says the association, is the drastic clause relating to the new bond which must be filed by the permittee. If any material false statement is made in the application for permit or the permittee does not fully and faithfully comply with the terms of the permit and all the laws of the United States "now or hereafter enacted," and "regulations" issued "as now existing" or as may "hereafter be amended," pertaining to intoxicating liquors, he shall pay "as liquidated damages an amount equal to 25 per cent of the penal sum" of the bond.

The association points out that the business man who uses non-beverage alcohol is known in his community and his qualifications and reputation can be ascertained before permit is granted. He has some financial standing and credit and if he does anything illegal the Government knows where to find him. His permit may be revoked by a very simple and quick process. If he owes any taxes, they may be collected by distraint or other summary process instituted by the Government. If he has committed an offense he may be prosecuted in the regular way. This decision, however, permits collection by the Government of 25 per cent of the bond for any infraction of the law whether done innocently or intentionally, in addition to the usual process of law.

E. PRITCHARD

Packer and Manufacturer
of the Finest

"EDDYS"

BRAND

Canned Food, Jellies, Preserves
Plum Pudding, Sauces, Table Delicacies
and

PRIDE OF THE FARM
TOMATO CATSUP

Bridgeton, New Jersey
and

331 Spring Street, New York, N. Y.



Mary Jane has decided to "play boat" with a Carton of Coffee on the way home from the Grocery.

No harm done in this particular instance for the carton is protected with K-V-P Waxed Karton Sealing Paper.

Have you tried it out?

Kalamazoo Vegetable Parchment Co.
KALAMAZOO, MICH.

WRITE FOR QUOTATIONS



Strictly independent.

Not affiliated with any other
vinegar company

ROYAL BAKING POWDER

Contains No Alum
Leaves No Bitter Taste

THE JOURNAL OF HOME ECONOMICS

Devoted to the interests of the home.

The purpose of the Journal of Home Economics is to offer a medium of exchange for teachers and institutional workers; to discuss modern household problems and to apply to them expert knowledge; to provide information for the homemaker; to record and interpret the results of investigation and research; and to give expression to the social and civic responsibility of the home.

Subscription price \$2.50 a year

Issued monthly by

THE AMERICAN HOME ECONOMICS ASSOCIATION
1211 Cathedral Street Baltimore, Maryland

Condensed Milk Exports Large

Figures for Fiscal Year of 1922 Show Heavy Shipments
Total \$31,000,000

The American cow must still use the multiplication table when she attempts to compare her activities abroad with those of pre-war years. While of course it was to be expected, says the Trade Record of The National City Bank of New York, that the cows of other sections of the world would gradually return to their pre-war habits and the foreign demand for American dairy products built up during the war would yield to domestic pressure, it is a fact that our exports of condensed milk in the fiscal year 1922 was in quantity 18 times as much as in the year preceding the war. Curiously, the total amount exported in the fiscal year 1922, was also more than in the year 1921 but of course much less than in the closing years of the war itself in which milk from the United States went for use of the armies and otherwise to all parts of Europe and also to certain other countries which had formerly drawn their supplies from Europe.

The surprising feature of the 1922 exports is their big total as compared with pre-war times and the very wide distribution which extended to not only every grand division but in fact to over 100 countries and colonies. The official record of exports of condensed milk for the calendar year 1920, the latest for which details are available, show exports of condensed milk in its various forms, "condensed sweetened," "evaporated unsweetened," and "dried and powdered." Until recently the class known as "condensed sweetened" held the lead in exports, but in very recent years the "evaporated unsweetened" is far in excess of the "condensed sweetened," while the third group "dried and powdered" is comparatively new in the governmental records of exports. Of the single group, "condensed sweetened," the exports in 1920 were distributed to 23 European countries. Thirty-five American countries, 20 in Asia and Oceania and nearly a score of countries and colonies in Africa, while numerous small islands and colonies are also included under the general grouping of "Other British East Indies," "Other British West Indies," "French Oceania," and "Other British Oceania," so that the number of political units to which the products of the American cow are now distributed is considerably over 100.

A large proportion of this comparatively new product for foreign markets, condensed milk in its various forms, originates in the Upper Mississippi Valley and including western New York and Pennsylvania.

The quantities of condensed milk distributed even in the fiscal year 1922, when the foreign demand was of course far less than during the war, was to Germany 56,000,000 pounds, to United Kingdom 59,000,000, to France 19,000,000, to Poland 13,000,000, to Cuba 26,000,000, to the Philippine Islands 10,000,000, to China 5,000,000, and to Japan 10,000,000 pounds. The prospective permanence of this new field for our domestic products is illustrated by the fact that the quantity of milk now exported to Asia alone is

more than that sent to all the foreign world in the year preceding the war.

The total value of condensed milk in its various forms exported from the United States from the beginning of the war to date is, in round terms, \$388,000,000. In the fiscal year 1922 alone the total value of the exports was, despite the fall off in prices, \$31,000,000, against an average of but a little more than \$1,000,000 per annum prior to the war.

Recent Patents

The following patents of interest to readers of The American Food Journal recently were issued from the United States Patent Office. Copies thereof may be obtained from R. E. Burnham, patent and trade-mark attorney, Continental Trust Building, Washington, D. C. at the rate of 20 cents each. State number of patent and name of inventor when ordering.

1,426,385. Apparatus for drying and sterilizing cereals. Anton Huhn, Minneapolis, Minn.

1,426,559. Preserved eggs and process therefor. Albert K. Epstein, Chicago.

1,426,756. Puffed food product and process of producing the same. Nathan Mininberg, Dickinson, N. Dak., assignor to Bran Products Company, same place.

1,427,000. Peanut-blanching roller and method. Alexander Lewinski, Chicago.

1,427,269. Lyeing section of peeling machines. Samuel J. Dunkley, Kalamazoo, Mich., assignor to Dunkley Company, same place.

1,427,270. Peeling apparatus and process. Samuel J. Dunkley, Kalamazoo, Mich., assignor to Dunkley Company, same place.

1,427,438. Art of prepared meats. Emil O. Brickman, Chicago, assignor to Illinois Meat Company.

1,427,902. Grape juice. Grace L. Johnston, Brooklyn.

1,427,903. Grape-juice product. Grace L. Johnston, Brooklyn.

1,428,602. Process for treating cheese. Philip Malekow, Chicago, assignor to Baker Food Products Company, same place.

1,428,628. Prepared flour. William P. M. Greck, St. Paul, Minn.

1,428,820. Process for the extraction of proteids and lactose from whey. David Thomson, London, England.

1,428,872. Candy-dipping device. Isaac Anderson, Oakland, Cal.

1,429,504. Method of blending wheaten. Chastian G. Harrel, Liberty, Mo., assignor to Campbell Baking Company, Wilmington, Del.

1,429,526. Method of determining condition of dough for bakery products during fermentation process. Curtis J. Patterson, Kansas City, Mo., assignor to Campbell Baking Company, Wilmington, Del.

1,429,573. Shortening agent. Carleton Ellis, Montclair, N. J.

1,429,679. Process for treating fruit juices. John G. F. Hieber, Spokane, Wash.

1,429,834. Process of making juices, jellies and jams, from vegetable substances such as fruits and vegetables. Otto Biemann, Magdeburg, Germany.

1,430,312. Desiccated buttermilk. Irving S. Merrell, Syracuse, N. Y., assignor to Merrell-Soule Company, same place.

1,430,342. Machine for cutting brick ice-cream. William C. Walsh, Chicago.

1,430,403. Process and apparatus for acting upon milk. Frederick A. Plummer, Minneapolis, Ind.

1,430,572. Ice-cream freezer. Albert T. Light, New York.

1,430,616. Apparatus for treatment of dough. Adolph Benz, Jr., Peoria, Ill.

1,430,670. Food product. John H. Morgan, Sr., and John H. Morgan, Jr., Racine, Wis.

1,431,156. Composition of matter for increasing growth of yeast when mixed with dough. William A. Geere, Herne Hill, London, and Ernest W. Geere, Upper Norwood, London, England.

1,431,227. Sausage linking and hanging machine. Otto C. L. Hirsch, Evanston, Ill., assignor to Sausage Linking Machine Corporation, Chicago.

1,431,448. Production of yeast food. Alfred H. Gallagher, Oak Park, Ill., assignor to National Retarder Company, Chicago.

1,431,519. Process for the extraction of cocoanut-butter. Eustache E. R. Gaudart, Paris, France.

1,431,525. Manufacture of leavened bread. Charles Hoffman, Tuckahoe; Harry D. Grigsby, Brooklyn, and Nathan M. Cregor, New York, assignors to Ward Baking Company, New York.

1,431,938. Pulverulent shortening agent and process of making same. Henry V. Dunham, Mount Vernon, N. Y., assignor to Dry Oil Products, Limited, London, England.

1,432,057. Dry shortening agent and process of making same. Henry V. Dunham, Mount Vernon, N. Y., assignor to Dry Oil Products, Limited, London, England.

1,432,358. Dough-mixer. Dmytro Podhajny, Algoma, W. Va.

1,432,632. Milk food product and method of making same. Clarence S. Stevens, Sheboygan, and Carl A. Baumann, Jefferson, Wis., assignors to Carnation Milk Products Company, Chicago.

1,432,633. Milk product. Clarence S. Stevens, Sheboygan, and Carl A. Baumann, Jefferson, Wis., assignors to Carnation Milk Products Company, Chicago.

1,432,634. Milk food product. Clarence S. Stevens, Sheboygan, and Carl A. Baumann, Jefferson, Wis., assignors to Carnation Milk Products Company, Chicago.

1,432,635. Powdered-milk compound and process of making same. Clarence S. Stevens, Sheboygan, Wis., assignor to Carnation Milk Products Company, Chicago.

1,432,671. Milk-sterilizing apparatus. Luther B. Comer, Fort Worth, Tex.

1,432,686. Manufacture of evaporated milk or evaporated milk compounds. George Grindrod, Kent, Wash., assignor to Carnation Milk Products Company, Chicago.

1,432,699. Milk product and process of making it. Philip G. Kinzer, Seattle, Wash., assignor to Carnation Milk Products Company, Chicago.

1,432,701. Mechanism for depositing coating upon cakes, etc. Edward E. Lawrence, Jamaica, N. Y., assignor to Loose-Wiles Biscuit Company, Long Island City, N. Y.

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The Newer Knowledge of Nutrition—E. V. McCollum, of the School of Hygiene and Public Health of Johns Hopkins University.

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Feeding the Family—M. S. Rose, Ph.D., Assistant Professor in the Department of Nutrition of the Teachers' College, Columbia University.

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A Laboratory Handbook of Dietetics—M. S. Rose, Assistant Professor of Household Arts, Teachers' College, Columbia University.

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Chemistry of Food and Nutrition—H. C. Sherman, Professor of Food Chemistry of Columbia University.

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The Book of Ice-Cream—W. W. Fisk, Assistant Professor of Dairy Industry of the New York State College of Agriculture at Cornell University.

The principles of ice-cream making and handling are discussed in this book for the benefit of the student and manufacturer of ice-cream. Discusses the materials used, machinery used, chemistry, marketing, management, etc. **\$3.25**

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The Modern Milk Problem—J. S. MacNutt.

Practical information as to the control of the milk supply, together with the various means and needs for sanitary supervision in the laboratory and in the field. Grading the milk supply of large and small communities is given special attention. **\$2.00**

A Manual of Milk Products—W. A. Stocking, Jr., Professor of Dairy Industry Cornell University.

This "manual" has been prepared for the purpose of bringing together the work of the best authors on the entire subject of milk and its products. Chapters on the Chemical Composition of Milk, The Factors Which Influence Its Composition, Physical Properties of Milk, The Various Tests Used in the Study of Milk, Butter Making, The Cream Supply, Butter Making on the Farm, Cheese Making, and The Bacteriology of Dairy Products. **\$3.00**

Milk and Its Products—H. H. Wing, Professor of Animal Husbandry of Cornell.

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of cream, manufacture and marketing of butter and cream, etc. **\$2.50**

The Commercial Apple Industry of North America—J. C. Folger, Assistant Secretary of the International Apple Shippers' Association; and Thomson, S. M., formerly Fruit Crop Specialist of the United States Department of Agriculture.

The selection and care of orchards, particularly large commercial crops; extensive treatment of handling, storing and marketing crops. Varieties of apples with their marketable qualities, time of ripening, uses, etc. By-products also discussed. **\$3.50**

Food Products—H. C. Sherman.

The first and second chapters deal with the principal constituents and functions of foods and with food legislation; then follow chapters on milk, cheese, and other milk products; eggs, meats and meat products; vegetables, fruits and nuts; edible fats and oils; sugars, molasses, syrups and confectionery; and food adjuncts. **\$2.75**

Chemistry of Plant and Animal Life—Harry Snyder, Professor of Agricultural Chemistry of the University of Minnesota.

Discusses the composition of plant and animal bodies, the chemistry of the plant and its food and its growth, the chemistry of human foods and animal nutrition, the digestibility and value of foods. **\$2.25**

The Book of Cheese—Thom and Fisk, Investigator of Cheese and formerly of Conn. Agricultural College; Fisk, Assistant Professor Dairy Industry New York State College of Agriculture at Cornell University.

Intended as a guide in the interpretation of the processes of making and handling a series of important varieties of cheese. The kinds here considered are those made commercially in America, or so widely met in the trade that some knowledge of them is necessary. The relation of cheese to milk and to its production and composition has been presented in so far as required for this purpose. The principles and practices underlying all cheese-making have been brought together into a chapter on curd-making. **\$2.40**

The Food Problem—Kellogg-Taylor, of the United States Food Administration and Commission for Relief in Belgium and Professor in Stanford University of California; of the United States Food Administration, and Exports Administration Board, and Professor of the University of Pennsylvania.

Part I of this book deals with the food situation of the Western European Countries, and the United States; part two the technology of food use. **\$2.00**

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Presents in concise form the composition and physical properties of foods, and discusses some of the main factors which effect their nutritive value. Prominence is given to those foods that are most extensively used in the dietary, and to some of the physical, chemical and bacteriological changes affecting digestibility and nutritive value which take place during their preparation for the table. **\$2.00**

Dietetics for High School—Florence Willard, B. S., Chairman of the Department of Household Science, Washington Irving High School, New York City; and Lucy Gilett, M.A., Director of the Dietetic Bureau, Boston, Mass.

The purpose of this book is to teach in a manner adapted to high school the application of the principles of nutrition to the feeding of the family with a special emphasis on relative values of different foods, economy in buying, and the importance of good food habits. **\$1.48**

A Textbook of Domestic Science—M. G. Campbell, Instructor in Home Economics, Jesup W. Scott High School, Toledo, Ohio.

A practical textbook and guide which is equally suitable for use in the school library or in the home kitchen. Food classification, the hygienic and dietary value of various food, the chemistry of foods and of food preparation, are treated adequately and with careful correlation. **\$1.40**

A Laboratory Manual of Foods and Cookery—E. B. Matteson, Instructor in Home Economics

in George Peabody College for Teachers, and Ethel M. Newlands, Director of Home Economics in Buffalo Technical High School.

A textbook that approaches the study of cookery through experimental work upon the chemical, physical, bacteriological and biological properties of foods. A soundly scientific and thoroughly practical book and one that will serve either as a text for an independent course in cookery or as a laboratory manual for the general course in foods. **\$2.00**

The Common Sense of the Milk Question—John Spargo.

Deals specifically with the problem of producing and marketing clean milk. **\$2.50**

The Book of Butter—S. E. Guthrie, Professor of Dairy Industry in the New York State College of Agriculture, Cornell University.

Contains chapters on the History, Composition and Food Value of Butter; Cleanliness; Care of Milk and Cream; Cream Separation; Grading Milk and Cream, and Neutralizing Acidity; Pasteurization; Cream Ripening, From Churn to Package; Flavors of Butter; Storage of Butter; Marketing; Whey Butter; Renovated and Ladled Butter; Margarine; Definition of Terms; Testing. **\$2.10**

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Food Values—Practical Tables for use in private practice and public institutions. By Edwin A. Locke, M. D.

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Nutrition and Dietetics—By Winfield S. Hall, M. D.

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Practical Dietetics—With Special Reference to Diet in Disease. By W. Gilman Thompson, M. D.

The accepted method of dieting for each condition of disease amenable to dietetic influence will be found in this work. The scientific principles involved in each case are discussed, with brief tables and summaries of dietetic directions appended. Representative hospital and Government institution dietaries are examined; diets according to age, occupation, weight increasing or diminishing, etc., are included. Full index and cross references. Illustrated. **\$8.00**

The Economy of Food—By J. Allan Murray.

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The World's Food Resources—By J. Russell Smith, recently consulting expert for the War Trade Board, author of "Commercial and Industrial Geography."

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THE AMERICAN FOOD JOURNAL

Floral Park, New York

EXECUTIVE AND EDITORIAL OFFICES

25 East Twenty-Sixth Street

New York City

Volume XVII

The American Food Journal

Number 12

The National Magazine of the Food Trades

Established 1906

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THE EDITOR'S PAGE

Something About Our Readers, Our Contributors, and Our Plans

THE term "American" is coming increasingly to stand for world interests; we are growing accustomed to think in world terms. Of course The American Food Journal wishes to keep up with the procession in this regard as in all others. It is, therefore, very gratifying to have a subscriber in Australia write us:

"I desire to express my appreciation of the valuable information contained in The American Food Journal. This is of great use to manufacturers of food products, as well as to the public generally."

Truly our horizon is a wide one!

Friendly souls, these Australian readers of ours, for still another takes the trouble to send us material on regulations in force in that part of the world. This courtesy is in return, the reader is good enough to say, for the help received from The American Food Journal. This is true cooperation.

Then there are our subscribers in the Nutrition Institute of the Imperial Japanese Government of Japan, and we feel quite "world conscious" when we write to Tokyo.

COMMENTS received on Dr. Sherman's article which appeared in the November issue bespeak an appreciative audience for Dr. McCollum and other food authorities who are interested to help us work out our plans for giving to our readers the very best that the food field affords. Other nationally known men are planning to contribute to the series on the connection between the laboratory and the manufacturing plant.

THE packer, the baker, and now the dairyman. A strong trio, when it comes to feeding America! That the dairyman is keeping up his end is attested by the article in this issue on "What the Milk Industry Has Accomplished."

We thought that we already had a flourishing family of features and so we had! But we confess to an added thrill of pride at thought of our youngest! The proposed section for domestic science readers might, if the old proverb be true, lay claim to being "half done," so "well begun" is it! Splendid material from splendid women is coming in and we can hardly wait until January to let you see it and share in our pleasure.

SIT in at our Conference Table this month and enjoy reading another instalment of the series on the place of the home economics woman in industry. It is only fair to state that the next con-

tributors to this series will be men, the manufacturers themselves. A well-known company has contributed an article for the January issue on the practical value of research work in the food industry.

IT is with considerable satisfaction that we present Dr. Sherman's paper on existing knowledge of vitamins. One of the greatest services the scientist renders to the layman is the inspiring to further study on any question of wide interest. This is just what Dr. Sherman has done, it seems to us, in the present instance. Those who read his paper will wish to pursue this fascinating subject still further and follow with ever-increasing interest the findings of the food laboratories, as the scientists uncover more and more information facts about the nutrition of the human body.

IN our November issue we spoke of the vital matters connected with conservation. A new conception of the term has come to us, partly as a result of the war, partly as a by-product of our broader conception of industry itself. The article on Salvaging Cantaloupe Waste is an interesting "follow up" to the one on asparagus waste.

OUR convention reports are of notable character this month, that of the American Specialty Manufacturers' Association at Atlantic City being a condensed summary of all that these enterprising men have accomplished within the year.

LIKE the children, with the frosting on their cake, we have saved till "the last" the story of our hopes for the future of our Washington Bureau. One of our editors spent a day at the Capital not long ago, and the full story of what happened would be too long for this page. We do wish our readers to know, however, that they have friends in the U. S. Senate, in the Bureau of Chemistry, the Federal Trade Commission, the Bureau of Agricultural Economics, the Office of Home Economics, the Dairy Division, as well as any number of specialized industries in Washington, all personally interested in The American Food Journal and all standing ready to help us in our efforts to make of the Journal the broadest and most helpful representative of American food interests that it is possible to publish.



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The American Food Journal

The National Magazine of the Food Trades

Established 1906

Vol. XVII

DECEMBER, 1922

No. 12

Specialty Manufacturers Adopt Code of Ethics and Oppose State Interference with Food Products which Comply with Federal Regulations

Convention at Atlantic City Adopts a Forward Program on Specialty Orders which is Concurred in by Wholesalers and Retailers' National Associations

THE American Specialty Manufacturers' Association held at Atlantic City on November 15, 16 and 17 what was generally conceded to be the most successful convention in the 14 years since it was organized. Among its important accomplishments was the adoption of a code of ethics on specialty orders, in which the concurrence of the National Wholesale Grocers' Association, the American Wholesale Grocers' Association and the National Association of Retail Grocers makes the plan one of undoubted success at its inception.

Disappointed because of the failure of Congress to pass a law compelling uniform food legislation throughout the country, the association passed a resolution urging adoption of a bill which would prohibit the states from enforcing restrictive legislation with regard to any food product in interstate commerce which is in conflict with or exceeds the regulations imposed by the Federal Food and Drugs Act.

The problem of the chain store and sale of private brands by both the jobber and the chain store came up for discussion, the culmination of which was the launching of a movement in the final session by the Philadelphia Association of Manufacturers' Representatives to combat jobbers' private brands and those of the chain store, by campaigns of advertising directed to enlighten the consumer as to the alleged evils of private brands.

The opening day was largely devoted to address of the retiring president, Fred Mason, reports of the treasurer, secretary and the chairmen of committees on legislation, publicity, membership, auditing, trade conditions, merchandising, and standardization.

During the second day of the con-

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vention addresses were made by Hon. N. B. Gaskill, chairman, Federal Trade Commission; Charles Wesley Dunn, counsel of the association; J. W. Herscher, president, National Wholesale Grocers' Association; Winifred Stuart Gibbs, associate editor, The American Food Journal; F. E. Kamper, president, National Association of Retail Grocers; H. A. N. Daily, ex-president, National Food Brokers Association; J. H. McLaurin, president, American Wholesale Grocers' Association; and Irving S. Paull, secretary, Joint Agricultural Inquiry Committee, Washington. The annual banquet of the association was held in the evening.

The third day was devoted to reports of chairmen of the trade sections covering lye, cereal and soap, the adoption of resolutions and the election of officers and board of directors.

At the banquet, Earl D. Babst, president of the American Sugar Refining Company spoke on the reputation back of a brand. He brought out the good will that is built up about a name and the great interest there is today in patenting registering trade marks and trade names. "In the eleven years from 1870 to 1881," said Mr. Babst, "there were only 8,190 applications to the patent office for trade mark registration, while in the single year, 1921, there were 15,424 such applications." The effort of the manufacturer to win the good will of the public under trade marks and trade names, said Mr. Babst, should be hailed as the highest and finest form of competition. The public is made the final arbiter.

Adoption of Code of Ethics Important Accomplishment

"Probably the most important accomplishment of the association during the past year," said President Mason in his address, "was the drawing up of a code of ethical conduct in a specialty order transaction, which code has been accepted by the National Wholesale Grocers' Association, the American Wholesale Grocers' Association and the National Association of Retail Grocers, and will, therefore, be issued as the joint statement and under the joint signature of the great and representative national trade organizations in our industry." The code, which follows on the next page, was submitted by the merchandising committee, of which F. D. Bristley, Royal Baking Powder Company, New York, is chairman.



The camera man was busy on the Boardwalk at the Specialty Manufacturers' convention and here are some of the results.

New Code of Ethics on "Specialty Orders"

INTRODUCTION

WE herewith present a statement of the outstanding and unquestioned obligations of the manufacturer, wholesaler and retailer, respectively, arising out of the "specialty order transaction," as it is commonly known, which transaction embraces the soliciting of orders by the manufacturer from the retailer for the account of and delivery by the wholesaler. We respectively submit that all manufacturers, wholesalers and retailers in the grocery trade of the United States, should govern their conduct accordingly.

(Signed):

American Specialty Manufacturers' Association; National Wholesale Grocers' Association; American Wholesale Grocers' Association; National Association of Retail Grocers.

Manufacturer—Wholesaler—Retailer

It is the obligation of each and every manufacturer, wholesaler and retailer:

1. Ever be mindful of and guided by the fundamental principle that they are engaged in a business affected by a great public interest and serving a paramount public purpose, wherefore they should constantly and earnestly strive, at all times, to elevate it to the highest plane of efficiency, integrity and usefulness;

2. Always to deal each with the other in a true spirit of justice, amity, courtesy and tolerance, and in pursuance of the elementary conception of right and honorable business conduct which should and must prevail in a society built upon the sure foundation of a democracy, organized in harmony with the most enlightened civilization in history, and finally directed to preserve individual opportunity and free and fair competition in the enhancement of the general welfare.

Manufacturer

It is the particular obligation of the manufacturer:

1. To produce and merchandise only products which are pure and whole-

some in composition, true to representation, properly put up, packed and shipped, and comply in all respects, with all applicable laws;

2. To aid the wholesaler and retailer, insofar as it lies within his power to do so, in preventing loss to them due to improper or excessive storage of his products;

3. To protect the wholesaler and retailer against liability or loss arising out of their purchase and sale of his products, if and where such loss is duly established to result from his fault;

4. To solicit no order upon the basis of a promise he cannot fulfill, and to fulfill, completely and exactly each and every obligation assumed by him in taking an order;

5. To accept no order for a quantity of his products which is reasonably apparent to be beyond the retailer's ability to buy and duly sell;

6. To accept no order unless and until it contains (a) a complete and correct printed or written statement of all the terms of the purchase, which terms are plainly explained to the retailer when the order is given; (b) the name of the salesman who secured it; (c) the signature of the retailer, written by him or for him by his duly authorized agent, in which latter event the personal signature of the agent shall also appear, together with the address of the retailer; and (d) the name of the wholesaler for whose account the order is taken;

7. To deliver to the retailer, at the time the order is given, a true and identical copy of his order.

Retailer

It is the particular obligation of the retailer:

1. To consider and treat each and every order he gives as a solemn and binding contract imposing upon him an unescapable legal and moral obligation to accept delivery in pursuance of its terms;

2. To give no order unless and until he truly desires to purchase and unquestionably intends to accept delivery in pursuance of its terms;

3. To give no order unless and until it contains a complete and correct printed or written statement of all the terms of the purchase, and he fully understands such terms;

4. To give no order unless and until he receives a true and identical copy;

5. To purchase prudently and within the limitations of his measured ability to buy and duly sell;

6. To store his products in a proper manner and to sell his older stock first;

7. Not to divert the demand of the consumer for and from a particular specialty product in his stock.

Wholesaler

It is the particular obligation of the wholesaler:

1. Promptly to accept or reject an order submitted to him for acceptance;

2. Promptly to return to the manufacturer (or, at his option, to the American Specialty Manufacturers' Association, where the order bears the stamp of that association) an order declined by him;

3. Promptly to offer the delivery of an order accepted by him in pursuance of its terms and to use every reasonable effort to secure the acceptance of its delivery by the retailer;

4. Promptly to notify the manufacturer (or, at his option, the American Specialty Manufacturers' Association, where the order bears the stamp of that association) of the refusal by a retailer to accept the due delivery of an order given by him, returning it, stating the circumstances of the refusal;

5. To refer no order accepted by him to either his salesman or the retailer for approval or confirmation;

6. To treat a retail order secured and presented by the manufacturer with the same consideration, care and dispatch as an order secured by his own salesman;

7. To store his products in a proper manner and to sell older stock first;

8. Not to divert the demand of the retailer for and from a particular specialty product in filling specialty orders.



This is not a parade, just a few of the convention snapshots grouped together in one strip

Resolution Favors Federal Law Protecting Food Products From Restrictive State Legislation

IN addition to the usual resolutions of thanks to speakers, the trade and public press, the hotel and to Atlantic City, the following resolution of disapproval of the Edge bill was adopted:

RESOLVED, that the American Specialty Manufacturers' Association does hereby record its disapproval of the enactment of Senate Bill 3385, by Mr. Edge designed and effected to place the cooperation of trade associations under the supervision of the Federal Trade Commission, because unnecessary in fact, unreasonable in requirement, and unjustly discriminatory in application. The real and ultimate welfare of the country is best served, in our judgment, by permitting the greatest possible freedom and independence of initiative and action in commerce subject only to a penalty for wrong doing. What American business needs is not Government supervision and control by additional regulatory law, but a clearer definition of the meaning and application of the present and adequate anti-trust laws.

Another noteworthy resolution called for uniformity of laws governing foods, drugs, insecticides and fungicides entering into interstate commerce and complying with the Federal Food and Drugs Act. The resolution read as follows:

RESOLVED, that the American Specialty Manufacturers' Association does hereby again earnestly recommend the enactment of a Federal statute providing, in substance, that foods, drugs, insecticides and fungicides, entered into interstate commerce and complying fully with the terms of the Federal Food and Drugs Act and the Federal insecticide Act, respectively, shall not be sub-

ject to, but shall be entirely free from any restrictive regulation whatever imposed by any state or municipality, in the exercise of its police power, that is, to any extent, or in any manner, in conflict with, or exceeds the regulation affected by and under the aforementioned Federal acts so long as such goods, drugs, insecticides and fungicides remain in the course of interstate commerce.

The following resolution disapproving of the enactment of statutes designed to create state trade commissions to regulate intrastate trade, was adopted:

RESOLVED, that the American Specialty Manufacturers' Association does hereby record its disapproval of the enactment of statutes designed and effected to create state trade commissions empowered to regulate intrastate trade and commerce, for the reason that there is no public need for such additional regulatory legislation and its enactment will be more detrimental than useful. Such legislation will ultimately result in placing American business under the regulation and subject to the control of 48 political regulatory commissions and in the promulgation of a mass of unnecessary, unduly repressive and conflicting regulations. The present anti-trust legislation existing in the several states, designed and effective to prohibit and prevent unlawful monopoly and undue restraint of trade, fully protects the public against detrimental conduct in trade and commerce.

An amendment to the Federal Trade Commission act providing against the publication of the name of the party complained against until a final order is issued against him, was recommended as follows:

RESOLVED, that the American Specialty Manufacturers' Association does

hereby recommend an amendment of the Federal Trade Commission Act effective to provide against the publication of the name of the party complained against unless and until a final order is issued to and against him, except where the act or the public interest, in the judgment of the commission, requires such publication.

An amendment was also recommended for the Federal Food and Drugs Act, as follows:

RESOLVED, that the American Specialty Manufacturers' Association does hereby recommend an amendment of the Federal Food and Drugs Act effective to provide that state and municipal food, drug and health officers shall report prima facie violations of that act discovered by them to the United States Department of Agriculture for due investigation and action under the act.

Other resolutions dealt with the power of the Supreme Court to invalidate legislation and disapproved emphatically of the proposal to amend the Constitution so that the Supreme Court would be deprived of its power to declare legislation of Congress invalid because of violation of the Constitution; endorsement of the recommendation of President Harding that income from State and municipal bonds be subject to Federal taxation; disapproval of the soldier bonus; a recommendation to the wholesale and retail grocers of the United States to sell older stock first; condemnation of substitution as an unjust and detrimental practice whether practiced on the retailer or the consumer; gratification at the economic recovery of American industry.

President Mason Urges Enlargement of Membership

"IT is my privilege," said President Fred Mason, addressing the convention at the opening session, "for the third time to welcome our new members and guests and also to extend to the wholesale and retail grocers, as well as the merchandise brok-

ers of the United States, the greeting of the American manufacturers of grocers' specialty products." In commenting upon the growth of the association, Mr. Mason said that in the early days of the association it was sought to maintain a "small and se-

lect" membership, limited to the larger manufacturers. "We are all glad," he said, "that the policy was not perpetuated." In pointing out the possibility of increase in the association membership, which he said was almost un-



Snapshots of more of those who were prominent at the convention of Specialty Manufacturers

limited and the association but in its infancy, Mr. Mason said:

"I hope the time may shortly come, and this I recommend to my successors, when a systematic effort will be made to build up our membership, especially in the field of the smaller manufacturers, by taking each state, one after the other, and enrolling all eligible specialty manufacturers therein. Our range of dues is such as to permit the affiliation of the smaller as well as the larger manufacturers. If this plan is effected, then it will be possible for state sections of the association to be organized which will have jurisdiction over all local matters in the state, subject to the general direction and control of the parent organization. Such state sections would constitute a great power for good, especially in the matter of local legislation.

"This plan is entirely practical. It only requires the necessary effort and organization to perfect it. With a membership running into the thousands, embracing the entire country and organized into state units, all governed and directed by uniform policy and controlled by the central office, the association would stand foremost among the commercial organizations.

"I am satisfied, also, as a result of membership in this association from the time of its organization, that the service now rendered by the association is more efficient and effective than ever before. Every day thousands of specialty orders, bearing the association stamp of genuineness and carrying the association message of integrity in the merchandising of specialty products, are given by retailer grocers and filled by wholesale grocers, and the silent, constant and persistent influence of the association toward greater efficiency has resulted in immeasurable benefit to manufacturers, wholesalers, retailers and the consuming public alike.

Association Promotes Slogan, "Move Older Stock First"

"Our organization was primarily instituted to promote the efficiency and economy of the specialty order transaction and to secure the integrity of the specialty order, and there can be no doubt that the result of the associa-

tion work has been and is universal evidence of the specialty order on the part of wholesale and retail grocers and a large reduction in the number of unjustified non-deliveries.

"Secretary Thunhorst has conducted a most active, influential and effective educational campaign to this end; also to prevent the spoilage of perishable food products by reason of their excessive or improper storage during distribution, which has occasioned an appalling loss each year. The association slogan, "move older stock first," has gone into the warehouse of every wholesale grocer in the United States.

"Through the co-ordinated effort of Thunhorst's office and our committee on trade relations, a splendid system has been devised to insure the prompt payment of all founded claims by wholesale grocers for reimbursement for loss arising out of non-genuine specialty orders bearing the association stamp. It is our earnest purpose and endeavor to make good this loss in pursuance to our agreement with wholesale grocers wherever the facts show that the responsibility is ours. I am glad to state that these complaints have been relatively few in number.

"I desire to take this opportunity in behalf of the association to request each and every wholesale grocer in the United States promptly to report to our association office any and all specialty orders bearing the association stamp which are proven to be non-genuine. We also ask all wholesale and retail grocers further and promptly to report to us any improper and unethical conduct by any manufacturer affiliated with this association, or his salesmen. This association is the active champion of right and the court of correction of wrong. We hope shortly to effect a new agreement with all wholesale grocers relating to their reimbursement for loss arising out of proven non-genuine specialty orders bearing the association stamp.

Commends Trade Conferences

"I desire to mention the valuable series of trade conferences instituted by and under the direction of Mr. Bristley, acting as chairman of the trade relations committee. In con-

nection with the annual meetings of the National Wholesale Grocers' Association the American Wholesale Grocers' Association and the National Association of Retail Grocers, I urge that similar conferences be held for the purpose of discussing trade problems which are of mutual interest and taking proper action wherever it is practicable to do so. There cannot be too close a contact between these four great associations.

"Difference of opinion and point of view and misunderstanding usually come from a failure of contact and usually are removed through and as a result of mutual conference. All reasonable men will concede the facts and recognize unquestionable principles. There will always be difference of policy and a difference of opinion with respect to policy, but out of such trade conferences will come a clearer and better understanding of the point of view of the other and the reasons underlying it, whereby friction will be eliminated and greater harmony and efficiency will be promoted.

"Our identical interests as manufacturers require that we organize for the purpose of counsel and action in the promotion and security of the real and best interests of the community as a whole. Likewise, the interest of the manufacturer, retailer and wholesaler are so interlocked and interdependent that close co-operation between the representative organizations along proper and constructive lines is not only highly valuable, but essential if we are to progress along the right lines without loss of time or effort and without fruitless misunderstanding and friction. Our legislative committee has been actively watchful of your interests throughout the year under the able chairmanship of Frank E. Barbour. Unwise legislation has been opposed and beneficial legislation encouraged.

"The committee on State foreign corporation tax laws, of which William L. Sweet is the distinguished chairman, has also had an active year. Numerous problems relating to the State taxation of foreign corporations have been met and settled in the case of individual members. The situation

(Continued on page 33)

What the Milk Industry Has Accomplished

In Scientific, Educational and Commercial Lines Various Organizations Have Cooperated With Noteworthy Results

By WINIFRED STUART GIBBS

Associate Editor, The American Food Journal

NINETEEN EIGHT was a crucial year in the history of the milk industry. Milk dealers were just beginning to be "occupation conscious," to realize that they were fast emerging from the valley of "peddling" to the mountain-top of accredited public service.



R. E. LITTLE, Secretary

International Association of Milk Dealers

From realization to organization was but a short step and the International Milk Dealers' Association was the result. For a number of years this association was, according to R. E. Little, present secretary, "a forum which met annually at the time of the Dairy Show for discussion of matters of interest to the milk dealers who attended the show and were invited into membership."

Owing to the fact that the organization was conducted gratuitously by its members it grew slowly but withal steadily until 1920 when a more permanent form of organization was adopted and a paid secretary appointed. This made possible the planning of a constructive program of development. Mr. Little has been secretary from the beginning and under his guidance the organization has accomplished much.

One of the first important steps was the development of a campaign for increased membership, "inviting into the ranks of the association all dealers who

were of good reputation in the community, and who were following sanitary and up to date methods in handling and marketing milk."

As a result of this campaign the association made a phenomenal record of increasing its membership more than 100 per cent in 1921.

The major part of the association's program functions through a series of committees, the scheme of the make up being some what as follows:

The organization chart of the association shows first a board of directors, functioning through the president, vice-president, secretary and treasurer.

Under direct supervision of the secretary and treasurer comes the extension and financial activities.

Next in order are two co-ordinate groups of standing committees as follows:

The committees of the first division are uniform costs and accounting, standardization of equipment, freight rates, research laboratory, legislation and membership. Committees from the second division are appointed to co-operate for the benefit of the industry with the National Dairy Council, agricultural colleges, American Public Health Association, United States Chamber of Commerce, National Dairy Products Committee and the World's Dairy Congress.

At the convention of 1922 the name of the organization was changed from the International Milk Dealers Association to the International Association of Milk Dealers.

Official Organ of the International Association of Milk Dealers

During this same meeting the association completed a plan for an official publication to be called "The Dairy World." The prospectus of the magazine reads:

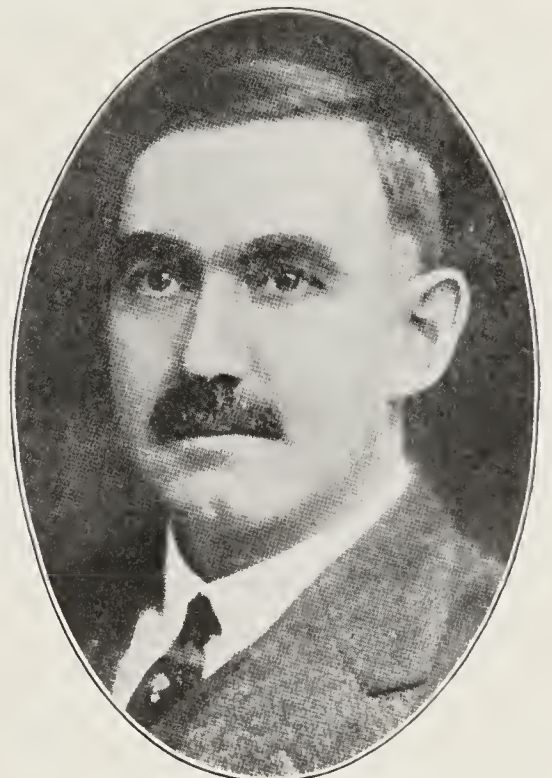
Our purpose is to furnish the men and women in the Dairy Industry with a monthly pocket-size magazine. It is to be brimming full of useful information, facts, news, gossip, etc., of interest to all dairy workers regardless of what branch of the industry they are in.

The small size is to make it "fit the pocket." Then you can have it handy to read in the spare minutes. In this way we plan to place in your hands the knowledge of many men. In fact, the prominent men in the industry are to tell you the things you should know about the work they are doing.

Then you are to have an equal chance to tell others about your work, and the things you are doing which may be of interest to them. At this time we are

open to all suggestions from our readers as to just how we may make this little magazine of more benefit to them.

The magazine began publication in July, 1922, at 508 South Dearborn Street, Chicago, with Roscoe C. Chase as publisher and editor. Already the official organ unpretentious as it is, is receiving enthusiastic support from members of the association.



E. M. BAILEY, President
International Association of Milk Dealers

As the organization exists today the executive force is as follows:

E. M. Bailey, President, Reick-McJunkin Dairy Co., Pittsburgh, Pa.

C. Oscar Ewing, Vice President, D. H. Ewing's Sons, Louisville, Ky.

S. O. Dungan, Treasurer, Polk Sanitary Milk Co., Indianapolis, Ind.

R. E. Little, Secretary, 139 No. Clark Street, Chicago.

Board of Directors

E. M. Bailey, Reick-McJunkin Dairy Company, Pittsburgh, Pa.; S. O. Dungan, The Polk Sanitary Milk Company, Indianapolis, Ind.; C. Oscar Ewing, D. H. Ewing's Sons, Louisville, Ky.; W. H. Forster, The Pure Milk Company, Ltd., Hamilton, Ont., Can.; H. P. Hood, 2d, H. P. Hood & Sons, Boston; F. H. Kullman, Bowman Dairy Company, Chicago; Lester LeFeber, Gridley Dairy Company, Milwaukee, Wis.; H. S. Van Bomel, Sheffield Farms Company, New York; A. M. Work, Portland-Damascus Milk Company Portland, Ore.

Current Activities of the Association

A recent interview with Mr. Little disclosed many interesting facts regarding the most recent accomplishments of the association.



How the National Dairy Council Co-operates with the Public Schools is shown by these posters which were prepared by the children themselves.

"As you know," said Mr. Little, "during and following the war, chiefly through the activities of the Department of Commerce, a large portion of American industry has undertaken a very constructive program looking toward the simplification of dimensions of equipment and elimination of types for the purpose of effecting plant efficiency and economy of operation.

"The necessity for work along this line in the milk industry was apparent. The work done by our committee on standardization was noteworthy and the committee's report is printed and available for study by all those who are interested.

"All the manufacturers present at the meeting agreed to make whatever standard fitting our committee agreed upon."

Continuing, Mr. Little said:

"Another outstanding feature of this year's work is the co-operation between our organization and the agricultural colleges. The recommendations of a joint conference were as follows:

It is the desire of the agricultural colleges to be of greatest service to the Market Milk Industry. It is believed that this service lies along two general lines—that of solving industrial problems and that of training men.

We also feel that more attention should be given by the agricultural colleges to the problems of the milk dealers. In accomplishing these ends, the agricultural colleges desire the closest co-operation with the milk dealers so that the problems of both may be mutually understood.

The present suggestions are concerned with the development of men prepared to grow into the broader responsibilities of the business rather than the training of routine workers.

The aim of this training is to lay a foundation of a thorough knowledge of the fundamental sciences together with training in their application to the market milk industry.

Such men should rapidly grasp the details of commercial problems and opera-

tions as they occur in the milk plants.

It occurs to us that it is the duty of the milk plants to develop these technically trained young men into real milk plant experts.

The course of study which will best fit men for responsible positions in milk plants should include a thorough training in the fundamental sciences coupled with as much applied work as the student's time will permit.

The fundamental sciences should include chemistry, physics, and bacteriology, each to be followed by courses making clear their application to the market milk industry.

The applied courses should include work in market milk, butter, cheese (including fancy cheeses), ice cream, condensed milk, powdered milk, dairy by-products and dairy machinery.

The instructor in these courses should be directed toward showing the application of sciences to these subjects as well as toward developing manual skill.

Special attention should be given to the subject of economics. The work in this field should likewise include training in both fundamentals and their application to dairy problems.

During the senior year there should be a course in milk plant management which should bring together and co-ordinate the previous teaching in scientific and applied courses.

We feel that the milk companies can render valuable assistance in the better development of good men by making it possible for students to get experience in milk plants during the summer months.

A. A. Borland, State College of Pennsylvania, State College, Pa.

C. H. Eckles, University of Minnesota, St. Paul, Minn.

Oscar Erf, Ohio State University, Columbus, Ohio.

C. Oscar Ewing, chairman, Agricultural College Committee, International Association of Milk Dealers.

P. D. Jones, State College of Pennsylvania, State College, Pa.

B. W. Hammer, Iowa State College, Ames, Ia.

H. A. Harding, Fred C. Matthews Company, Detroit, Mich.

A. Fleutsch, Agricultural College Committee, International Association of Milk Dealers.

W. P. Lockwood, Massachusetts Agricultural College, Amherst, Mass.

H. A. Ruehe, University of Illinois, Urbana, Ill.

H. L. Russell, University of Wisconsin, Madison, Wis.

W. A. Stocking, Cornell University, Ithaca, N. Y.

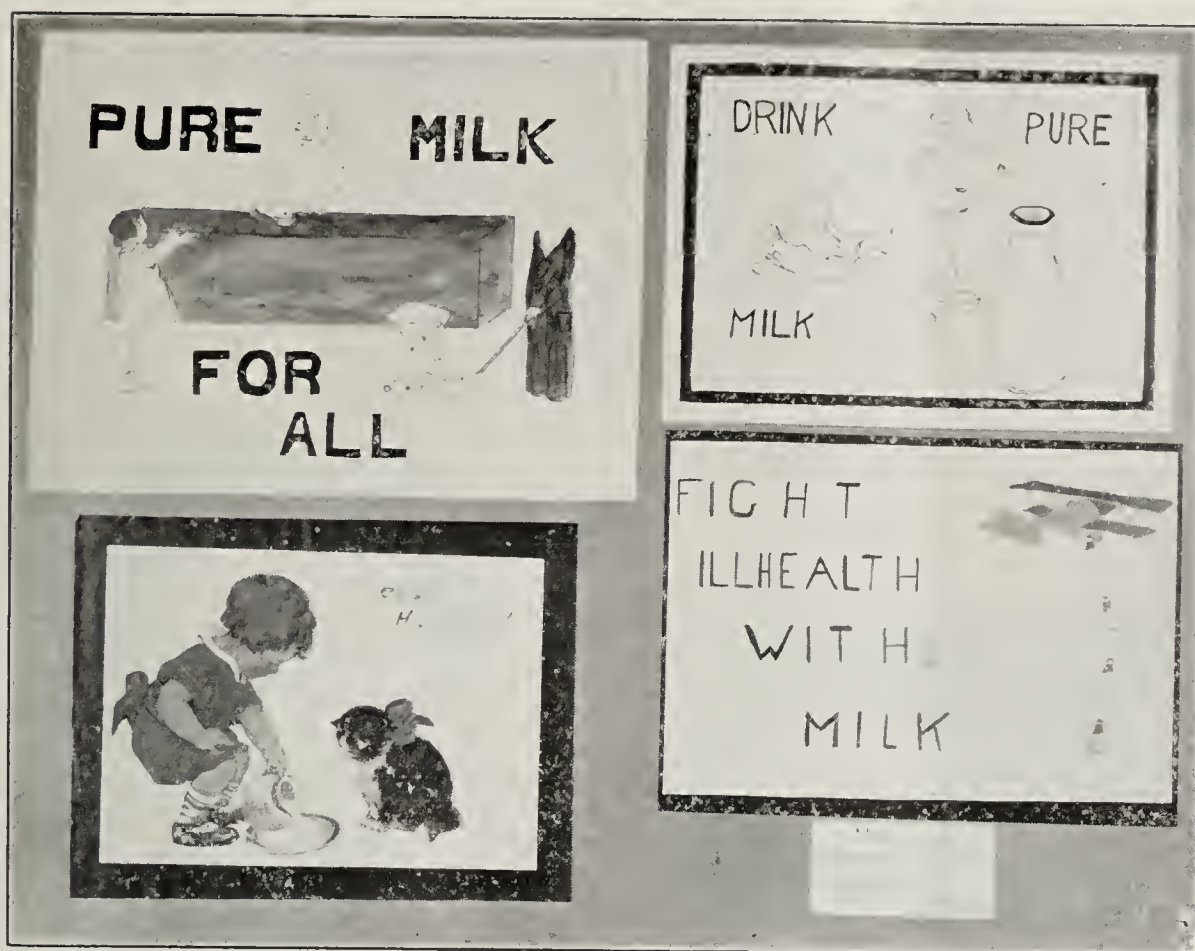
R. B. Stoltz, Ohio State University, Columbus, Ohio.

C. C. White, Connecticut Agricultural College, Storrs, Conn.

C. E. Van Norman, World Dairy Congress, Washington, D. C.



Milk plays and pageants are important in the publicity work of the National Dairy Council. This picture shows a scene from one of the children's festivals.



Types of posters prepared by children during campaigns of Dairy Division.

How the Industry Advertises

Much of the advertising carried on by the association is done through the National Dairy Council, "an educational organization promoting health and child welfare."

M. D. Munn, president of the council, speaks interestingly of the beginnings of this unusual advertising.

"Some years ago," said Mr. Munn recently, "when the hoof and mouth disease was playing havoc with the finest herds in America some of the level headed business men of the dairy industry met to discuss things. One of the things which came up at that meeting was the subject of building this business on a more substantial foundation. At that time they laid the corner stone of the National Dairy Council."

"Through this organization they planned to so advertise milk and milk products as to make the demand exceed the supply. During the intervening years they have built slowly, but correctly, the fine organization now at the service of the men and women engaged in dairy work. To properly do the work laid out for us it has been necessary to build an organization of individuals skilled in many differing lines of work. We have experts on advertising, selling, child teaching and training, household economics, health, welfare, nutrition, pageants and plays and other kindred subjects. Much of our work is with civic organizations such as mothers clubs, parent-teachers associations, health office, school boards, etc. This work of these specialists precedes the real educational advertising accomplishments."

What the National Dairy Council Is

The National Dairy Council is a corporation, incorporated under the

laws of Illinois. It is not for profit, but purely educational. Its membership includes many of the largest companies in the dairy industry and many individuals engaged in the dairy business. These are cattle breeders, milk producers, milk dealers, creamery men, ice cream manufacturers, cheese makers, machinery manufacturers, supply jobbers, etc. Membership is based so far as is practical, on the volume of business of the supporting members.

Each year at the annual meeting all members vote for and elect a board of directors, consisting of 34 men. The directors elect nine of their own number as an executive committee. The executive committee attends to further details of organization from this point.

The workers of the National Dairy Council include the following groups:

1. Executive officers.
2. Organization workers.
3. Nutrition experts.
4. Health play directors.
5. District organizers.

How the National Dairy Council Is Supported.

The budget committee plans the campaign in each locality according to probable support. The council does not favor short time campaigns, 0.95 per cent of the money raised is used for local projects, the other 5 per cent going to national educational work.

The observer is at once struck with the care that has been expended on this part of the council's work. Wisely and carefully have the various committees laid their plans, so that nothing is wasted. The money contributed is for the most part spent for educational work in the women's clubs and through the schools.

Sometimes the money is handled by a committee composed of local producers and dealers, each putting up one cent per hundred pounds produced or purchased.

Localized Work of National Dairy Council

Once assured of sufficient funds, the council approaches civic groups in the community and having secured their co-operation the work in schools, clubs, health departments, etc., proceeds, culminating in a series of carefully organized projects, such as pageants, "health days" and others of interest to children and parents.

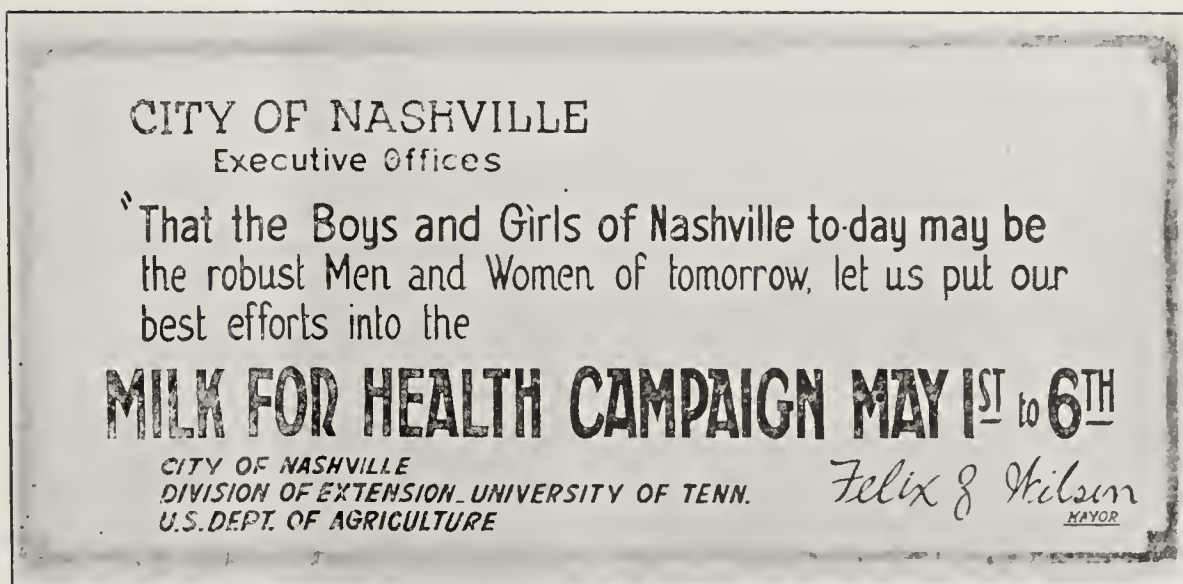
Louise Fitzgerald is director of the household economics work and on page 24 of this issue of The American Food Journal tells something about the part played by home economics women in this tremendous advertising project.

Present Status of the International Association of Milk Dealers

The net result of these and other activities has been to increase the membership in the International Association of Milk Dealers over 200 per cent in the past two years. To quote Secretary Little again:

"We feel it safe to say that at the present time our membership represents at least 75 per cent of the capitalization of the fresh milk industry in the United States and Canada."

"The association in activities already started has material to keep it busy for several years to come. The field,



Mayor's proclamation showing municipal co-operation with Dairy Division.

however, for service to the milk dealer from the standpoint of education, welfare, business and scientific research, efficiency and economics in milk plant operation is unlimited. All these activities will in the final analysis have in view the ultimate aim of delivering a quart of milk of the highest quality at the lowest possible price."



Dr. C. W. Larson, Chief of Dairy Division, Department of Agriculture Government Co-operation With the Milk Industry

Uncle Sam is one of the strongest members of the advisory group attached to the milk industry. Nor does he confine himself to giving advice. The Dairy Division, Bureau of Animal Industry, U. S. Department of Agriculture, in Washington, maintains both research and technical laboratories for the benefit of the entire industry. The very existence of the Dairy Division is a tribute to the importance of the milk industry.

Dr. C. W. Larson is chief of the division and has this to say about its activities:

"Just as the United States Government is your government, so the Dairy Division, which is part of the Government, is your division. It is ready to do what it can to help solve your problems in so far as its resources permit. It has no connection with any commercial concern, charges nothing for its services and aims so to use its resources that the greatest good may be done to the entire industry."

There are more than one hundred men in the division, each being a specialist in some phase of dairying or research work, and these men are working constantly for every member of the industry.

The work of each specialized section is under the general supervision of the chief of the division. Dairy

engineering, dairy statistics, dairy publications (Government bulletins), experiment farms, milk marketing methods, milk products manufacture—these are but a few of the activities which Dr. Larson's large and enthusiastic family carries on for the upbuilding and developing of the milk industry as a whole. The story is too long for a single article.

Home Economics Work in the Dairy Division

As one of the significant and comparatively recent developments within the Dairy Division we may note the home economics or "milk utilization" work carried on under the supervision of Jessie M. Hoover, milk utilization specialist of Dr. Larson's division.

Miss Hoover has created one of the most interesting "jobs" within the Government, that of co-ordinating the interests of the milk producer, the distributor and the consumer. Under her supervision "milk campaigns," projects of municipal organization and popular administration have been instituted and after four years of work Miss Hoover can point to city after city where the consuming public has been taught to demand milk, taught to buy it and taught how to use it.

Two large scrap books tell graphically the history of these four years and with this article we reproduce from these scrap books some of the posters made by enthusiastic children who took part in the school projects.

Uncle Sam showed his wisdom in selecting a woman of Miss Hoover's training and experience, having selected her from the faculty of the University of Idaho where she was head of the Department of Home Economics.

That the milk industry is benefiting by such work is so self-evident as to need no confirming.

How Science Co-operates With the Milk Industry

Like other major industries the milk industry works hand in hand with science. The American Dairy Science Association has for its object, "To advance the general welfare of the dairy industry, especially the improvement of dairy instruction, by the stimulation of scientific research in all phases of the subject and by improvement in methods of conducting extension work."

Membership in this association is of one kind only, active. To quote from the constitution:

"The following are eligible for membership: Any person who is formally announced by an agricultural college, or experiment station, or by the dairy divisions of the United States or Canadian Departments of Agriculture as an instructor, extension worker, investigator or administrative officer connected with the dairy industry * * * with college or university training in technical science, or anyone filling a responsible position in the dairy industry of a professional character requiring a technical knowledge of dairying of a high order."

"The Journal of Dairy Science," a technical magazine of high order, is

the official organ of the American Dairy Science Association. The Journal is edited by J. H. Frandsen, as editor in chief, with the following associate editors:

F. W. Bouska, Chicago, Ill.; A. A. Borland, State College, Pa.; C. H. Eckles, St. Paul, Minn.; R. C. Fisher, Storrs, Conn.; J. B. Fitch, Manhattan, Kans.; J. A. Gamble, College Park, Md.; E. S. Guthrie, Ithaca, N. Y.; H. A. Harding, Detroit,



Jessie M. Hoover, Milk Utilization Specialist, Dairy Division

Mich.; S. H. Harvey, College Park, Md.; O. F. Hunziker, Chicago, Ill.; H. H. Kildee, Ames, Iowa; C. W. Larson, Dairy Div., Dept. Agri., Washington, D. C.; W. B. P. Lockwood, Amherst, Mass.; M. Mortensen, Ames, Iowa; LeRoy S. Palmer, St. Paul, Minn.; T. R. Pirtle, Dairy Div., Dept. Agri., Washington, D. C.; C. L. Roadhouse, Davis, Calif.; L. A. Rogers, Washington, D. C.; H. A. Ruehe, Urbana, Ill.; W. A. Stocking, Jr., Ithaca, N. Y.; M. R. Tolstrup, Clemson, S. C.; H. E. Van Norman, Washington, D. C.; Ivan C. Weld, Washington, D. C.; G. C. White, Storrs, Conn.

Summarizing the Industry's Accomplishments

A complete summary of the accomplishments of the milk industry would be impossible, for the reason that those who are leaders in the field never rest satisfied with any one thing done.

Possessed of a strong association among the dealers, another in the advertising division, still a third in the United States Government, and a co-operating one among the scientists, with a popular publication to serve as official organ of the workers in the industrial field and a scientific journal to serve the technicians; with specialists busy in every phase of the work, and, what is most important of all, with a fine spirit of unity within and without, in the co-operating agencies, the milk industry may well point with pride to its past and with assured hope to its future.

The Place of the Laboratory Man in the World of Food Economics

With Knowledge of Food and Nutrition He Will Find Good Openings in the Industrial Field

By Dr. E. V. McCOLLUM

Professor of Chemical Hygiene, School of Hygiene and Public Health, Johns Hopkins University

THE laboratory man is essentially a leader in the field of public health, for without exception, so far as I know, discoveries of value in a practical way have come from the laboratory. The bacteriologist and the immunologist have in the past held the center of the field and have been regarded as the most important contributors to the advance of this phase of applied science. In more recent times the physiologist has applied himself to the study of the problems of industrial hygiene, and has made contributions of great value to employers of labor and to industrial workers, in showing them the effects of improper ventilation, dusts of various kinds, wrong temperatures, improper lighting, poisonous vapors, etc., as factors in injuring the health of the workers and in reducing their output of product. The medical zoologist has brought himself into prominence among health workers through his studies on hookworm, ameba of several kinds and of the trypanosomes which cause several kinds of diseases of paramount importance. Aside from these laboratory specialists, the chemist and the sanitary engineer have also a place in the field of public health.

The chemist has long attracted attention among public health workers. The treatment of water so as to render it safe for drinking is perhaps his greatest single contribution to the health of the people of cities. Water borne typhoid is essentially a thing of the past, although epidemics will doubtless continue to occur in places for many years because of failure of local authorities to put into practice the methods which have been placed upon a firm foundation by the chemist working in collaboration with the bacteriologist and the sanitary engineer.

Chemists have been of immense service to the public in the conduct of water surveys. As the results of these it has been possible to advise concerning the proper treatment of waters of various kinds for industrial purposes, and for the safeguarding of human health.

In the past chemists have earned the everlasting gratitude of the public through their work in detecting adulteration of foods, and in raising the



Dr. E. V. McCollum

standards of foods and drugs through making war upon those who would defraud in these lines. His contributions in this field have been too numerous to enumerate. This work was especially developed through the efforts of Dr. Harvey W. Wiley while he was chief chemist of the Department of Agriculture. Dr. Ladd and Dr. Alsberg were likewise very prominent in the establishment of a system of official inspection of foods, feeds and drugs which has done away in great measure with the practice of adulteration and sophistication in such articles, and its continuance will keep fraud of this kind at a minimum.

These are some of the chemist's more obvious contributions to the improvement of the health of the public. There is probably little prospect for progress in these directions. The continuance of the work of food and drug control and of safeguarding water supplies which has been provided for by law is assured, and constitutes a permanent achievement of society. Standards of purity, once established, do not afford an opportunity very frequently for further improvement. At

least this is not a very inviting field for research.

Physiological Chemist Invades Public Health Work

During the last fifteen years the physiological chemist has invaded the domain of public health. Before that time he was engaged mainly in the study of "pure" science as it related to the chemical processes of physiology. When he turned his attention to the study of the nutritive values of foods, and the nature of the chemical substances which a diet must provide in order to promote health, he found a field of great possibilities, and progress has been steady and rapid by methods evolved during that period. We now see statements concerning the biological value of proteins in different foods; estimates of their content of one or another of the four vitamins which mammals, with few exceptions, must take in their diet. There is still the possibility that other vitamins may be discovered. The study of the nutritive needs of different species has shown that certain species do not require as many vitamins as do others. For example, the rat is immune to scurvy, since it is able to synthesize the antiscorbutic substance water-soluble C. We are beginning to see statements concerning the amounts of the several inorganic elements which are essential for the promotion of optimal health in animals suitable experimental purposes. In a word, we have now-a-days a "biological method for the analysis of a foodstuff" the results of which express the relative values of foods in terms of their essential nutrient principles, insofar as these are at present understood.

This type of work is of a nature which when once well done will yield results of a permanent value, and it will never be necessary to repeat it. The activities of a number of laboratories in universities in Europe and America are very great in the direction of accumulating a vast volume of knowledge concerning the special properties of natural foods and manufactured products. This work does not offer a permanent field, therefore, for investigational activity. Special equipment is necessary and much experience is required in order to gain proficiency. A few persons must do this

work. The value of their contributions will, however, be very great.

The chemist has good opportunity to co-operate with the bacteriologist and physiologist. The need for physiological chemists is great. They can help both bacteriologist and physiologist, and also work effectively with the chemical engineer in the solution of his problems. Disposal of waste is a matter of great importance, and has been but inadequately dealt with in the past, and the chemical engineer will need the assistance of the chemist in this direction.

The chemist in public health work is not likely to attract as much attention as does the bacteriologist or immunologist, for their discoveries are likely to be of a more spectacular nature.

The Laboratory Man in Education

The laboratory man in education may have either one of two fields, i.e., teacher or investigator. The teacher is just as great as the investigator from the standpoint of the value of his contribution, but he does not get the public recognition which is given to his colleague except in respect and gratitude of his students. The investigator is seldom a successful teacher of under-graduates. These are the ones who will fill positions of a practical nature in public health laboratories. As a rule he is unsuccessful as a teacher because he is too interested in his investigational work. He is, however, the one who gives the spark of en-

thusiasm to graduate students and thus provides for a new generation of "chronic wonderers" who constitute the successful investigators.

The field of the chemist in public health work is a growing one, especially as regards positions of minor importance in state and city departments of health. Men or women in such positions will not advance readily to high official positions. The high official positions in public health work will probably always be held by persons with medical degrees. The number of successful investigators in fields which will apply to health problems will never be greater than the demand. One needs only to show that he gives promise of having the ability to solve problems of any kind in order to get a chance to show what he can accomplish.

The Laboratory Man in Industry

The laboratory man with knowledge of the chemistry of food and nutrition, as well as of physiological chemistry, will find good openings in industry. The desire of business men to avail themselves of the best technical advice and to invest in research which will help them place their products on a high plane of excellence is seen in various directions. Pharmaceutical houses have for years employed chemists both for routine analyses and for research. The National Cannery Association has maintained for some years a research laboratory under the able direction of Dr. Bigelow. It has also given generously of funds to the

Harvard Medical School for research on food poisoning, and is among the most progressive of industries in this respect. There are many industries whose work involves the handling of large quantities of food products of various kinds in which the chemist at present has no place, but where he is certain to make a place for himself in the future. I need only mention the milk powder industry, the canning industry, the food desiccation industry, and other manufactures relating to foods to indicate the scope of this field of activity for the chemist. In marked contrast to the laboratory of a city or state health department, the laboratory man in industry is in line for advancement, professionally and financially. Very often the chemist in the course of a few years works his way to a high executive position in an industrial concern.

The world wants the man or woman who can stand before the chemical table and solve the problems which arise in the technical processes which are without number in the industrial world. Those who see the need of such relations which enable them to solve such problems will always be in demand and will be richly rewarded for their talent. Those who stand before a task which is out of the ordinary and which requires resourcefulness and a store of knowledge of the properties of substances will find it necessary to remain in an ordinate position.

Salvaging Cantaloupe Waste—An Opportunity for a New Industry

By H. D. MORGAN, Ph. C.

CANTALOUPEs present a valuable reclaimed field. Approximately a million tons of this delicious edible melon possessing high food value with unestimated health vitamins, are plowed under each year in a single section.

If a farmer reaps 50 per cent of his crop he is extremely pleased.

The waste is due to the flooding of the market, car shortage, packing facilities and even through frost bite or sunburn. Some of the best melons may have "spots," rendering them unsalable.

The various steps in their salvage can be taken, holding each until the season is over to later run the plant to full capacity.

It may be said here that a plant capable of handling cantaloupes could in off seasons handle many other products that are raised in the same locality.

Meat Rich in Sugar

The meat of the cantaloupe is rich in sugar, probably fructose (fruit sugar), sucrose (cane sugar), and levulose (glucose). There are also protein (vegetable) and starch together with aromatic oils and esters, with some citric and tartaric acid. It is doubtful

whether there is any malic acid. The reaction of these acids upon the green starch in the presence of chlorophyll, water and sunlight are the factors in producing the various sugars contained in the ripe melon.

The storage in ice and darkness checks the ripening for a time which allows the Eastern marketing. But even at that, melons must be picked before wholly matured.

This succulent meat can be dehydrated into, not as a substitute for, but rather in a place by itself as a dainty conserve to be eaten as we do dates, figs, prunes and raisins, and by keeping the colors of the various varieties offer a choice of wonderful appetite appeal.

The rind and near rind possess a dainty flavor which by itself or possibly in combination with other fruit juices can be exploited under a trade flavor for sirups and soda fountain beverages.

The juice that surrounds the seed no doubt contains food properties with a mixture of gums, acids, etc.

The seed, roughly speaking, is composed of two parts, the hard pericarp and the albuminous seed leaves. We

will leave out the embryo or seed plant proper though without question it contains valuable substances, but as we can find use for the residue, we will take this up later.

Shell Contains Phosphates

The hard shell pericarp certainly contains phosphates—phosphates are one of the most valuable chemical foods taken into the human economy. The system craves these, hence we are being advised to eat more whole cereals.

Just what can be done with this pericarp is a pharmaceutical problem and is commercially possible.

The albuminous part of the seed contains a bland fixed oil which should give itself up readily to pressure. This bland oil may have vast food properties. At least will lend itself readily to saponification in soaps, beauty creams and cerates.

As an end product, the residue of all the melons can by proper chemical addition be made into a melon fertilizer, producing possibly not more melons, but of higher quality, with more intense flavor.

Present Status of Our Knowledge of Vitamins and Its Application to the Dietary

Committee on Nutritional Problems of American Public Health Association Reports on Studies of Past Year

By H. C. SHERMAN, C. E. A. WINSLOW, E. L. FISK,
I. GREENWALD and T. B. B. JONES*

AT present all students of the subject accept as fully proven the existence of at least three vitamins, which for convenience are designated as vitamin A, vitamin B, and vitamin C.

It is not proven that any one of these three designations stands for a single chemical substance. In fact there is experimental evidence that at least two substances may be involved in the effects hitherto attributed to vitamin A, and similarly in the case of vitamin B. For the purposes of the paper, it seems best to present them separately under the familiar headings, vitamins A, B, and C.

Vitamin B

Two substances now known as vitamins, the one whose existence was first described as essential to animal nutrition, is the antineuritic substance discovered but not isolated by Eijkmann (1890, 1896, 1897, 1897a, 1898, 1906).¹ To this substance the name vitamin was given by Funk (1911, 1912a, 1912b), and it is this substance which is ordinarily referred to when the word vitamin is used without qualification. Beriberi is due to the use of diets deficient in this vitamin. Most frequently such deficiency has been attributable to an excessive dependence upon white rice (Vedder, 1913), but that the rice itself is not a necessary factor is shown by the occurrence of cases of beriberi in Newfoundland where the dietary defi-

Fruits, Vegetable, and Milk Needed in Adequate Diet

THAT it is very important that there should be included in every individual dietary and every community food supply sufficient amounts of milk, fruits and vegetables to insure adequate intake of vitamins and mineral elements together with protein of assured high nutritive efficiency, was the conclusion of the Committee on Nutritional Problems of the American Public Health Association in its recent report made public. This should mean, says the committee, fruits and vegetables in quantities liberal according to current food habits, and of milk at least one pint a day per capita of population—preferably a quart a day for every child and at least a pint a day for every adult.

This milk, it is stated, may be in any of the now standardized forms—raw or pasteurized, raw or dried. There is no evidence of any measurable effect upon vitamin A or B when milk is properly pasteurized, condensed or dried.

When milk, vegetables and fruit are amply provided, the rest of the fuel value of the diet, says this committee, can then be supplied in the form of almost any wholesome food or foods desired. It is suggested that about one-fifth of the total expenditure for food be devoted to the purchase of fruits and vegetables.

The importance of this committee's findings it goes without saying is such that a careful reading of the report commends itself to those engaged in all branches of the food industry.—THE EDITOR.

ciency was brought about by too exclusive a use of fine white flour (Little, 1912). In either case the use of the whole grain instead of the highly milled product will prevent the disease, and will cure cases which are not too far advanced. Beriberi or nutritional polyneuritis is easily produced experimentally in fowls or pigeons and by means of such experiments much has been learned regarding the prop-

erties of the antineuritic vitamin and its distribution among food materials.

The water-soluble growth-promoting substance which McCollum designated water-soluble B is generally believed to be identical with the antineuritic vitamin and the term vitamin B is thus taken as referring to the substance having both of these properties.

On diets otherwise adequate but lacking the B vitamin young animals (rats) quickly cease to grow and begin to lose weight and develop a condition of general weakness which may include symptoms of polyneuritis, though sometimes death occurs before the nerve symptoms are distinctly developed. While often referred to as "growth-promoting," this vitamin (like each of the others) is essential to normal nutrition at all ages. In mammals a deficiency of vitamin B in the diet causes loss of appetite, commonly followed by a more complex and less clear-cut set of symptoms than in the case of birds. These symptoms are grouped by McCarrison in order of prominence as follows: under-nutrition, derangement of function of the organs of digestion and assimilation, disordered endocrine function, and malnutrition of the nervous system. A partial but not complete deficiency in this vitamin leads to impaired growth and a general undermining of health and vigor with increased susceptibility to infectious disease.

McCarrison (1919, 1919a, 1919c, 1921), working chiefly with pigeons, finds little difference between the animals deprived of vitamin B only and those deprived of all three vitamins (probably because in this species the characteristic effects of lack of vitamin B show themselves more quickly and prominently than do the effects of a lack of vitamin A or C). As the result of vitamin starvation a slowing of metabolic changes generally and a fall of body temperature were noted. The adrenals were enlarged but other organs lost weight—the thymus most, and then, in order, testes, spleen, ovary, pancreas, heart, liver, kidneys, stomach, thyroid and brain. His observation of marked atrophy of testes and ovaries is in line with the finding by Drummond (1918) that sterility followed quickly in a male rat de-

* Read before the American Public Health Association at the 51st Annual Meeting, Cleveland, October 16, 1922.

¹In the preparation of this paper we have drawn freely upon the American Chemical Society monograph, The Vitamins, by H. C. Sherman and S. L. Smith (Chemical Catalogue Company, New York, 1922), and because of limitations of space the reader is referred to that monograph for the titles of original publications which can be readily found in the bibliography of the monograph from the authors' names and years of publication as given in the text of the present article. For lack of space here, reference may also be made to the monograph of Sherman and Smith for summaries of chemical and physical properties of the vitamins.

prived of vitamin B; and with the reported tendency of amenorrhea among beriberi women (Blunt and Wang, 1921). McCarrison believes that his findings "may afford some explanation of the genesis of that great mass of ill-defined gastro-intestinal disorders and vague ill-health which forms so large a proportion of human ailments at the present day."

Osborne and Mendel, and Kerr in Mendel's laboratory, have repeatedly demonstrated the marked effect of vitamin upon the appetite; and recently Cowgill and Mendel (1921) have shown that if a dog on a diet deficient in this respect can be induced to eat enough to maintain life there develops a condition strongly resembling that of human beriberi.

Thus the need of this vitamin and the nature of the injury which follows an insufficient intake of it are essentially the same for the mammals, including man, as for the fowls and pigeons with which the experiments upon this vitamin have been so largely performed. In both cases it is seen that the characteristic polyneuritis is by no means the only result of a deficiency of vitamin B in the food. Before the nerve symptoms become apparent the body may be seriously weakened in several other ways and rendered much more susceptible to the inroads of infectious disease. Hence the importance of such selection of food as shall result in an intake of vitamin B much more liberal than the minimum which suffices for the support of growth and the prevention of beriberi.

Vitamin C

Theobald Smith (1895) found that guinea-pigs kept upon a diet of oats developed a hemorrhagic disease. Later when Eijkmann, as above noted, had shown that a condition corresponding to beriberi could be induced in fowls by faulty diet, Holst and Frolich (1912, 1913) experimented with guinea pigs and found that a diet of grain or bread brought about in these animals a condition corresponding in its essentials with human scurvy, and their own and subsequent experiments, notably those of Cohen and Mendel (1918) and Hess and Unger (1918, 1918a, 1918c, 1919), made it certain that scurvy is due to the lack of an "antiscorbutic," as beriberi is due to the lack of an "antineuritic," vitamin.

The species whose susceptibility to scurvy is best known, and from whom our knowledge of the antiscorbutic vitamin, now commonly called vitamin C, is chiefly derived, are the guinea pig, monkey and man. But vitamin C evidently has functions in normal nutrition as well as in the prevention of scurvy, and is a dietary asset even to a species which shows no scurvy symptoms, such as the rat. Harden and Zilva (1918c) and almost simultaneously Drummond (1919)

tried the addition of vitamin C, in the form of orange juice, to the diet of rats and found this to result in better growth and vigor. This is of special interest in connection with the clinical observations of Hess, who found many cases of subacute or latent scurvy among infants. These cases do not show pronounced scurvy symptoms but are irritable, lacking in stamina, and more or less retarded in growth. Better growth, higher stamina, and better general health and disposition are induced by the feeding of vitamin C in the form of orange or tomato juice or other suitable antiscorbutic food.

As Hess explains fully in his recent excellent monograph (*Scurvy, Past and Present*) he believes that a large proportion of infants and young children receive less than an optimum amount of vitamin C, and that even among adults with their more varied dietary so many are near the borderline of adequacy in this respect that "a failure of the potato crop is followed by scurvy in the spring." Still more recently Watkins-Pitchford in his introduction to Delf's report of her investigations in South Africa² writes:

The health of all the inhabitants of a country which is liable to prolonged droughts is exposed to periodical menace from shortage of fresh vegetables and fruit. This menace is not so much that of declared and recognizable scurvy as of the "pre-scorbutic" or latent scurvy condition; for in this condition the resistance to infective disease, whether originating in the individual or affecting the whole community in the form of an epidemic, is reduced. It is also worthy of note that a diet which is theoretically only just sufficiently antiscorbutic to prevent manifest scurvy will, in practice, fail in its object. This observation points to the necessity for always providing a liberal margin above the bare minimum of the requirements of the body in vitamin C.

Cooking Reduces Vitamins

Not only does the somewhat restricted distribution of vitamin C among foods raise the question whether the so-called normal dietaries will always contain it in optimum amounts; another reason for careful provision of a liberal allowance is to be found in the fact that much of what is contained in the food may be destroyed in the cooking. Delf in the report above mentioned writes:

There is increasing reason to believe that, in institutions where the ration of antiscorbutic food is limited to cooked vegetables, a quantity which is theoretically about sufficient for the maintenance of health if consumed raw or lightly cooked, becomes quite inadequate after prolonged boiling, stewing or frying. For example, 82 men were affected with scurvy in a prison-camp in Scotland in the spring of 1917. At the time potatoes were scarce, but the ration con-

tained a fair proportion of fresh meat and 2 oz. of swedes were available daily. The cause of the outbreak was investigated by Professor Hill, who discovered that the meat was always served as a stew, the vegetables were added, and the whole cooked for about five hours. An outbreak of scurvy in a hospital in Vienna has recently been traced to the custom of twice cooking the vegetables provided, at a time when the daily allowance was necessarily somewhat limited. The evil effect on fresh food of prolonged heating or simmering has also been observed from time to time in certain South African mine compounds.

Delf found that in ordinary cooking of cabbage about 93 per cent of its antiscorbutic vitamin was destroyed; and Eddy has recently confirmed this, finding a destruction of 90 to 95 per cent of the vitamin C whether the cabbage be cooked in an open kettle or in a pressure cooker.

Effect of Heating on Vitamins

La Mer, Campbell and Sherman (1922) carried out an extended study of the effect of heating at different temperatures and for different lengths of time upon vitamin C as contained in tomato juice. Among other results it was found that on boiling the juice at its natural acidity for one hour, one-half of the vitamin C was destroyed, while four hours at boiling temperature destroyed about 68 per cent. In experiments in which the tomato juice was heated at 60, 80 and 100 deg. C for one hour and for four hours, it was found that the percentage of vitamin C destroyed always increased both with the time and with the temperature of heating. Neither the time nor the temperature of heating can safely be disregarded if serious losses are to be avoided, and it cannot properly be said that either the time or the temperature is more important than the other, for their relative importance will depend upon conditions. The studies referred to seem to warrant the general view that for short periods of time (one hour or less) the rate of destruction runs relatively rapidly and therefore in such cases the length of time of heating is likely to be a more serious factor than the temperature, while for longer periods the effect of temperature assumes relatively greater prominence in comparison to time than it does in shorter periods. Both time and temperature of heating should be held to the lowest practicable minimum if the antiscorbutic vitamin is to be conserved to the best advantage.

The best conservation of vitamin C also demands the avoidance of heating under oxidizing conditions and of the use of soda or other alkali, since this vitamin is readily destroyed by oxidation and more readily in neutral or alkaline than in acid media.

Vitamins in Canned Foods

In view of the importance of so many factors it is unsafe to attempt a categorical answer to such general

² Studies in experimental scurvy, with special reference to the antiscorbutic properties of some South African food-stuffs. Publication No. XIV of the South African Institute for Medical Research, Johannesburg, 1921. By E. Marion Delf.

questions as whether or not canned foods contain enough vitamin C. Canned meat and canned beans contain practically no vitamin C while canned tomato is one of our best sources—partly because the tomato is initially rich in the vitamin, partly because its acidity acts both to protect the vitamin from heat destruction and to reduce the heat treatment needed in the canning process. The fact that Hess (1921) and also Hume (1921a) have found the antiscorbutic property to be well preserved in sweetened condensed milk is evidence that vitamin C in a nearly neutral medium can be preserved through a moderate heat treatment and subsequent storage when both heating and exposure to air are reduced to a minimum by evaporating under vacuum and immediately placing the product in airtight containers.

Thus the antiscorbutic value of a preserved food will depend upon many factors, such as the amount of vitamin C which the food contained at the beginning, its hydrogen ion concentration, the time and temperature of heating to which it has been subjected, the extent to which and the temperature at which it has been exposed to air or other oxidizing agents, probably also the presence or absence of substances which may catalyze the oxidation or heat destruction of the vitamin, and very possibly other factors not yet recognized.

Vitamin A 3

The existence of a fat-soluble substance or substances essential to normal nutrition was established independently by McCollum and Davis (1913) and by Osborne and Mendel (1913a, 1914) through experiments in which it was found that animals on food mixtures alike in all other respects would grow or not according as the fat in the food mixture were butter-fat or lard.

At the same time Osborne and Mendel (1914) pointed out that animals suffering from lack of this fat-soluble substance became subject to an eye disease which has since been widely discussed in connection with this dietary deficiency under the names of ophthalmia, xerophthalmia, keratomalacia, and conjunctivitis.

Laying Up Stores of Vitamins

In the case of each of the recognized vitamins, the characterization of the substance depends as yet chiefly upon the physiological effects observed to follow the use of a diet deficient with respect to the vitamin in question. When a diet lacking fat-soluble vitamin but adequate in other respects is given to a young growing rat growth

continues for a longer or shorter time according to the opportunity which the animal has previously had to lay up a store of this vitamin in his body. After cessation of growth the animal may or may not remain at stationary weight for a time, then there usually sets in a loss of weight and a condition of general decline accompanied by increased susceptibility to bacterial infection. This lowered resistance results in a large proportion of the experimental animals developing the characteristic disease of the eye.

These observations have been made chiefly upon the rat, not, as is sometimes supposed, because the rat is particularly susceptible to a lack of the fat-soluble vitamin, but rather because at the time of the discovery of the vitamin the rat had already become the favored animal for laboratory feeding experiments. There is no reason to doubt, and ample reason to believe, that the rat is representative of mammals generally in his need for the fat-soluble vitamin and in the effects which he shows as the results of its absence or inadequacy. That results such as those described for the rat follow the lack of fat-soluble vitamin in the food, has been shown experimentally for species varying as widely as the fowl, the rabbit, the dog, and the pig, and there is much clinical evidence showing that the same is true of the human species. For instance, the eye disease observed by Bloch (1917, 1921) as one phase of the malnutrition of Danish children was quite definitely related to deficiency of fat-soluble vitamin in the diet since it was cured by feeding with whole milk or butter, or by administration of cod-liver oil.

We shall therefore continue to draw experimental evidence regarding the physiological significance of the fat-soluble vitamin chiefly from work with the rat; but we have ample reason to believe that the same or similar effects will result in man also from the use of diets unduly poor in this vitamin.

Susceptibility to Other Ailments Due to Vitamin Deficiency

It has been repeatedly found that diet poor in fat-soluble vitamin leads to weakness in other respects as well as to increased susceptibility to eye disease. Osborne and Mendel (1921a) report diarrhea and diminished appetite as frequently resulting from food poor in fat-soluble vitamin; and they have definitely correlated this deficiency with the occurrence of phosphate renal calculi (bladder stones) among their experimental animals. McCollum and Davis (1913, 1914) and also Drummond (1919a, 1919b) report increased susceptibility to infections including lung disease among individuals whose diet is poor in this vitamin. Steenbock, Sell and Buell (1921) confirm this and emphasize also the susceptibility to bronchial troubles and abnormalities of the skin. Evans

and Bishop (1922) find that diets containing enough fat-soluble vitamin for growth and protection from eye disease may still require enrichment with this vitamin in order to enable the animal to meet the added strain of reproduction.

With so much direct experimental evidence of widespread weakening of the body when the intake of fat-soluble vitamin is low, it is not surprising that many authorities find reason to correlate low intake of this vitamin with increased susceptibility to such diverse diseases as rickets, pellagra, and tuberculosis. For lack of space these latter problems cannot be adequately discussed here; but mention must be made of the fact that Hart, Steenbock and Hoppert (1921) have pointed out a new relationship of vitamin value of food to the calcium metabolism, and McCollum and his associates have recently announced their conviction that the vitamin concerned with prevention of rickets is different from that which prevents the eye disease. This would mean that the functions which hitherto have been attributed to vitamin A would now be divided between the "antiophthalmic" and the "antirachitic" vitamins. Both are fat-soluble and for the purposes of this paper we may continue to use the term fat-soluble vitamin which covers them both and any possible further subdivisions of the original "vitamin A" which may conceivably come to light as the result of further research.

While space permits no real discussion here of the relation of diet to susceptibility to tuberculosis and pellagra or of the question whether an infection is necessarily involved in the latter disease, it seems important to note at this point, what McCollum has so frequently emphasized, that dietaries poor in vitamin A are unfortunately common throughout the country and that people weakened by such diet are probably more readily attacked by the disease to which they are chiefly exposed in the locality in which they live, whether this be tuberculosis, pellagra, or some other disease.

Value of Milk and Eggs

Certain it is that the foods which have been found by long experience to be especially beneficial in feeding both for the prevention and cure of tuberculosis are milk and eggs, both of which are rich in fat-soluble vitamin. There also seems to be, in the otherwise somewhat conflicting conclusions reached by different students of pellagra, a fair agreement on the fact that inadequate milk supply is closely correlated with occurrence of pellagra in the regions in which it is prevalent, and that liberal use of milk in the diet is especially efficient in the prevention and cure of the disease.

A liberal allowance of fat-soluble vitamin certainly tends toward a higher degree of health and vigor; and when

³This section and the one which follows are largely taken from the paper on The Fat-Soluble Vitamin prepared by H. C. Sherman for the general meeting of the American Chemical Society, Pittsburgh, September, 1922.

more is consumed than is needed at the time, the body has power to store the surplus and hold it available for future use. This has been found to be strikingly true both of young animals and of adults.

An animal taken at weaning time from a family whose diet is relatively poor in this vitamin and placed upon a diet which lacks it but is good in all other respects will very soon cease to grow; whereas one of the same age but from a family whose diet furnished liberal amounts of fat-soluble vitamin will, upon the same experimental diet, continue to grow by virtue of his stored vitamin, often doubling and sometimes trebling his weight. Similarly the length of time that an adult can survive on a diet lacking the fat-soluble vitamin has been found to depend upon the opportunity which he has had to store the vitamin in his body from surplus received in his previous food.

Whole Milk Powder Rich in Fat-Soluble Vitamin

In experiments now approaching completion in the laboratory of food chemistry at Columbia University it has been found that a mixture of two-thirds whole wheat and one-third skimmed milk powder supplies enough fat-soluble vitamin to maintain growth at practically the normal average rate and apparent good general health in the rat, and that an increase of the fat-soluble vitamin in the diet by the use of whole milk powder instead of skimmed results in a distinctly higher degree of health and vigor as shown in longer life and much better success in bearing and rearing young. That this is due to the increased intake of fat-soluble vitamin and not of the fat itself is shown by parallel experiments in which the same differences were found to result from diets which differed only in that one contained lard or coconut oil while the other contained butterfat.

Recent experiments emphasize strongly the fact that fat-soluble vitamin is needed by adults as well as during growth. That adults appear less dependent upon the fat-soluble vitamin content of their food is attributable in part to the fact that they have passed the stage of development at which the effect of a deficiency becomes apparent quickly and in part to the fact that when the adult has grown up on a diet rich in this vitamin he will have acquired a sufficient store to carry him over subsequent periods of inadequate intake, provided these are not too prolonged.

How the fat-soluble vitamin which the body has stored is distributed among the different organs and tissues has not yet been determined quantitatively. Weight for weight liver contains more than muscle or adipose tissue; but the concentration of fat-soluble vitamin in liver, in muscle, or in

adipose tissue will depend primarily upon the concentration of this vitamin in the food which the animal had received. Thus the vitamin value of meat of the same kind cannot be foretold even for closely related animals of the same species, except as we knew also the food which they have received and the rate at which they have been fattened.

The adipose tissue of the pig usually contains little fat-soluble vitamin—not necessarily because he is a pig but primarily because he has fattened rapidly on food relatively poor in vitamin A. And of what little vitamin the pig fat contains, most, if not practically all, appears to be destroyed by the heating and exposure to oxidation which are involved in the processes of rendering and clarifying the lard. (Drummond, Golding, Zilva, and Coward, 1920). Osborne and Mendel (1921) have repeatedly and invariably found lard to be devoid of fat-soluble vitamin, while Daniels and Loughlin (1920) report the finding of indications of significant amounts. Whether lard actually contains significant amounts of this vitamin in some instances, or whether the rats used by Daniels and Loughlin were able to thrive on their experimental diets because of vitamin which they had previously stored must for the present be regarded as an open question.

Liver Better Source Than Ordinary Meats

It is certain, however, that neither lard nor any other adipose tissue or muscle fat can safely be depended upon as an adequate source of the fat-soluble vitamin. So far as it goes liver is a better source than ordinary meats; but a much more important source than either is to be found in milk and eggs. In view of the great importance of abundant supplies of fat-soluble vitamin for the support of tissue formation, it is natural that the maternal organism should transfer rich stores of this substance to the milk or the egg whose function in nature is to furnish tissue material and growth-promoting substances to the young. Thus the natural corollary of the great importance of fat-soluble vitamin in life processes is that the materials especially evolved for the nourishment of the young—milk in mammals and eggs in birds—are relatively rich in this vitamin. And since cattle have been successfully bred for milk, and fowls for egg production, it naturally follows that milk and eggs are the most valuable and milk usually also the most economical of the sources of this vitamin in the human dietary.

Vitamins in the Dietary

In the present state of knowledge we consider it highly important to know as much as possible about the occurrence of vitamins in foods, to take account of them in considera-

tions of food values and the problems of food supply, and to see that individual and family dietaries provide the vitamins in quantities distinctly more liberal than the minimum allowances which would suffice for the prevention of deficiency diseases.

Tables summarizing the occurrence of vitamins in foods are now readily available. (See for example: Laboratory Handbook for Dietaries, Revised Edition, by M. S. Rose; The Vitamin Manual, by W. H. Eddy; the American Chemical Society monograph on The Vitamins, by H. C. Sherman and S. L. Smith; the vitamin poster prepared by the American Medical Association and reproduced in miniature in its Journal, Vol. 78, page 1407).

Without entering into details it can safely be said that milk in its various forms is the most important and economical source of vitamin A while supplying also liberal amounts of vitamin B and significant quantities of vitamin C, and that the fruits and vegetables while varying widely among themselves are as a group a very important source of vitamins B and C.

It is very important that there be included in every individual dietary and every community food supply sufficient amounts of milk, fruits and vegetables to insure adequate intake of vitamins and mineral elements together with protein of assured high nutritive efficiency. This should mean fruits and vegetables in quantities liberal according to current food habits, and of milk at least one pint per day per capita of population—preferably a quart of milk per day for every child and at least a pint for every adult.

This milk may be in any of the now standard forms—raw or pasteurized, canned or dried. There is no evidence of any measurable effect upon vitamin A or B when milk is properly pasteurized, condensed or dried. Under what conditions and to what extent if any these processes influence the vitamin C content, is a matter of active investigation at the present time. In a previous report this committee has recommended the use of some antiscorbutic food in the diet of all artificially fed infants; and in the present case the supply of vitamin C is amply safeguarded by the recommendation regarding fruits and vegetables.

The fruits and vegetables will naturally vary with locality and season. To ensure suitable prominence of these in the food supply it is suggested that about one-fifth of the total expenditure for food be devoted to the purchase of vegetables and fruit.

With milk, vegetables and fruit amply provided, the rest of the fuel value of the diet can then be supplied in the form of almost any wholesome food or foods desired.

THE CONFERENCE TABLE

A Means by Which the Manufacturer, Consumer, Research Worker and Educator May Discuss Their Common Problems

By WINIFRED STUART GIBBS

Home Economics Workers in Dairy Councils

How the Value of Milk in the Diet Has Been Taught in the Public Schools and Elsewhere

By LOUISE FITZGERALD

Miss Fitzgerald's paper is the third of a series which The American Food Journal will publish on the place of the home economics woman in the food industry. This contribution is of peculiar interest in view of the article appearing elsewhere in this issue on "What the Milk Industry Has Accomplished."

WOMEN with training in home economics selected because of their personality, knowledge of health work, and organizing ability, have been a decided factor in the successful development of the program of the National Dairy Council and affiliated district councils. These councils are educational organizations promoting child health and human welfare by showing the importance of milk and dairy products in a health program. All of their educational activities and literature are based upon the findings of scientists, who through their extensive research and by animal experimentation, have evolved a system of diet which will promote health, and have shown the need of liberal quantities of milk and dairy products in such a diet.

Dr. E. V. McCollum of Johns Hopkins University considers milk and dairy products of fundamental importance. He says, "We should from early infancy to old age take a quart of milk a day or its equivalent in dairy products. Milk is our most important protective food."

Dr. H. C. Sherman of Columbia University has just announced some comprehensive results on the basis of the amount of calcium needed in the diet of growing children for "optimum" development of bones and teeth. He concludes "that however good the dietary in other respects, each child should receive a quart of milk



Louise Fitzgerald

in some form every day; and that this standard of milk consumption should be maintained at least up to the age of fourteen years."

These conclusions and other invaluable scientific material form the background for the entire Dairy Council program. Scientific facts must be reduced, however, to language that children and mothers can understand. Women of home economics training with the further qualifications mentioned have taken these facts, and from them developed a simple and effective program of "what to eat and why."

Work in the Public Schools

Since practically every school system in the country is emphasizing the need of better health through health teaching, the National Dairy Council in 1921

had a very definite part in more than 100 communities in this health education. The council nutrition workers carried on "milk for health" programs, conducting nutrition classes, helping to establish the serving of milk in schools for under-nourished children and co-operating with local health organizations in every possible way. Many of the larger cities have established permanent dairy councils, to work all the year through with schools and health agencies. The large number of home economics women employed makes it evident that they are helpful in the council program.

The Philadelphia Interstate Dairy Council, active in what is known as the "Philadelphia milk shed" has a staff of 22 people, more than half of whom are women with home economics training. The Pittsburg District Dairy Council has five home economics women on its staff. The Cleveland "milk for health" campaign had ten home economics workers. St. Paul and Minneapolis, St. Louis, Chicago, Boston and numerous other cities all have permanent programs with home economics women teaching the value of milk and dairy products.

This group of carefully chosen women has developed some unique ways of presenting food facts. A supper club was a novel way used in one city to interest industrial girls in proper food combinations. Many of these girls were planning to marry and establish homes of their own, so the course, covering twelve lessons, proved very popular. The club met once every week, each girl paying twenty-five cents for her supper. At each club meeting two different girls were selected to plan the menu, and two others to do the marketing. Each girl prepared her own supper, always learning to make some new and nutritious food combination. The Dairy Council worker in charge reviewed the food principles involved in the

dishes prepared, while the girls were eating.

Teaching Proper Food Combinations

The worker in another city developed a somewhat similar plan of food budget lessons, consisting of six demonstrations for mothers on proper food combinations. The work includes a series of food demonstrations to show the preparation of milk and dairy dishes. Where foreign women attend, the recipes are printed for them in their own languages.

The Dairy Council is most helpful, however, in the regular school program of health education. It is possible to co-ordinate and teach the value of milk and dairy products in almost every phase of school work. Art supervisors develop health poster contests, in which the idea of "milk for health" is featured by most of the children. Six thousand children in the fourth and fifth grades of one city last year wrote stories on milk as a part of their language work. In the physiology teaching of today, children are not required to memorize the names of all the bones in the body, but rather they learn that milk and vegetables build strong bones and hard teeth, and that they must observe very well defined rules of eating and sleeping to be healthy.

Children unconsciously learn much about health if it is co-ordinated with their play. The dairy councils have developed many health playlets to teach in dramatized form the value of milk. The "milk fairies" is perhaps the best known of these, as it was

shown during the past year before groups of children aggregating more than half a million. In this play the Guardian of Good Health comes to Johnny, the under-nourished boy, who does not like milk. She brings with her the Butterfat, Vitamin, Mineral Matter, and Sugar fairies, together with King Protein and his baseball nine. Johnny becomes much interested in these folks from out of a milk bottle. When he realizes that he is pale and under-nourished because he has not made friends with milk he speedily proceeds to do so. This play and many others are available to teach in their fanciful way the place of milk in proper nutrition.

Beauty Products of Food

A demonstration featuring "Every Girl American Beauty Products" by a demonstrator with a fully equipped dressing table has been instrumental in interesting girls of high school age in the foods they eat. Every Girl American Beauty Products advocates Cream Kissed Carrots as Nature's paint brush, guaranteed to produce a permanent rose tint in each cheek. Cow's Vanishing Cream, the most exquisite beautifier ever discovered, Powder Puffs of fluffy baked potatoes, Perfumes from fresh luscious fruits and other equally important foods are presented by the food worker in this novel program "to put the paint on from the inside out."

Educational exhibits both local and national are developed in the National Dairy Council program. In co-operation with the eleven national health

organizations, the National Dairy Council staged an exhibit called "Healthland" for the 1922 National Dairy Show, which stands out as the most effective health exhibit ever put on. Every phase of "this land of 10,000 thoughts" was carried out from the standpoint of nutrition and health. Fifty thousand boys and girls saw the exhibit in one week, and had a ride on the Healthland flyer, a tiny steam train that chugged its way through Fruit Valley, Vegetable Center, Long Sleep Mountain under Prune Bridge to Milk City, the capitol of Healthland. The original idea for this exhibit was inspired by the "Healthland Flyer" pamphlet of the Child Health Organization of America.

Nutrition workers of the council had charge of "Healthland Zoo," where animals showing the results of proper and improper feeding were displayed. Dogs of the same age from the same litter, with one, three times the weight of his brother because he had milk, taught a lesson that would not soon be forgotten.

Based Upon Scientific Findings

There are so many other activities of home economics workers in this food and health program which might be mentioned here. It has been the aim, however, of this discussion to show that the program of the National Dairy Council in all its phases is based upon the findings of science and that women with home economics training have been absolutely necessary in carrying this message effectively to the homes of America.

Food Manufacturers Learning to Depend More Upon Home Economics Women

THE fact that a goodly number of food manufacturers are coming to depend more and more on their departments of home economics is one of the good signs of the times," said Winifred Stuart Gibbs, of The American Food Journal, at the recent convention of the American Specialty Manufacturers convention. "Home economics needs industry," Miss Gibbs pointed out, "to furnish a broad field of contact with the consumer; while industry needs home economics in order that its products may be presented to the consumer from the standpoint of scientific knowledge of nutritional and economic values.

"One of the stimulating things about the food business is the number of interests represented. Good team work is always inspiring and we home economics women feel that we are especially fortunate in that we are playing on the same team with food manufacturers.

"This has not always been the case. We had first to learn to be a profes-

sion to convince our classical sisters that we were as truly educated as if we were devoting ourselves to Greek and Latin. This once accomplished, some of us failed to realize all of our opportunities. While our own organization was developing we necessarily were occupied in formulating our own standards and it is only comparatively recently that some of us have fully realized how close a connection exists between our field and that of the manufacturer.

"A far-seeing group of home economics women has always realized this and at the annual meeting of the American Home Economics Association held last summer Home Economics in Business appeared for the first time on the official program.

"To show you how close is the connection between the domestic science and individual specialties you may be interested to hear how varied are the points of contact.

"For example, in using each specialty the domestic science woman has oc-

cur to her automatically some one special point in which the specialty in question will fit into her scheme. For example, one specialty might suggest help along the line of nutrition of children, another would instantly bring to mind the greatest food value at lessened cost.

"In working with baking powder the domestic science woman is interested because its use adds attractive and palatable variety to the daily meals. She welcomes cereal coffee because of its value as a beverage to children and invalids. She looks upon macaroni as a basis for numerous substantial and nourishing dishes that help housewives in planning inexpensive meals.

"When it comes to milk products the worker thinks of their place in various cookery processes. She knows their use and value in making cream soups, puddings, cocoa, etc., thus saving fresh milk for the use of the children of the family, and so on through the list of food products.

The Best Things From Current Food Magazines

A Digest of the Month's Periodicals for the Busy Reader

Macaroni and the Durum Crop in the United States

CARROLL K. MICHENER tells the story of macaroni in The New Macaroni Journal for November 15, 1922. The article is reproduced from "The Northwestern Miller."

Mr. Michener begins by tracing the origin of macaroni paste, showing that the Chinese used similar pastes long before the Christian era. Italy, however, sponsors the products as we know them. France adopted them and in 1903 was producing 330,000 pounds a day.

Meantime, says the author, China and Japan have revived the industry. The manufacture of macaroni in the United States began in 1880, the first factory being built ten years later. To quote:

"The pioneer makers of macaroni in the United States were without the proper equipment and more particularly lacked the right raw materials. The European manufacturer, through his longer experience, knew that a hard or so-called durum wheat was necessary in making satisfactory macaroni. This variety of wheat was not then grown in the United States, and domestic manufacturers were attempting to use bread flour.

"Both these difficulties were gradually eliminated. Durum wheat seed was imported from Russia. The Russian durum, grown in the Black Sea districts, had proved especially adapted to macaroni making, and was extensively imported by both Italy and France. Among the other acceptable varieties of wheat were those grown in Algeria, southern Argentina, Italy and France. Canada's wild 'goose' wheat, rejected as a bread wheat, found considerable use as a macaroni wheat, particularly in France. Indian and Turkish wheats were often mixed with those imported from Algeria.

"The United States Department of Agriculture is credited with the introduction of durum wheat into this country. Through its experimental stations and agricultural colleges it had been endeavoring to get a wheat that would thrive on thin and sandy soil, and an agent was sent to Russia for the purpose of selecting new types.

"Previous to this, however, durum wheat had been grown in fairly large volume by Russian settlers in North Dakota, and it was from them that the

Department of Agriculture purchased its first samples of what is now the well known variety of arnautka.

"Durum was found to be admirably adapted to the climate of the north-western states, notably the northern section of South Dakota, the southern portion of North Dakota, and adjacent regions in Minnesota and Montana. It is said to thrive best on a soil where there is, during the early growing season, a superfluous amount of moisture to draw upon. Later, when it attains its growth, it needs less moisture than other wheats. A North-western agricultural expert is credited with the statement that the climatic and soil conditions of North Dakota make that state better suited for the raising of durum wheat than any other district in the world.

"Durum, it is asserted, produces more bushel to the acre than other varieties of spring wheat, and flourishes on soil where blue stem and other spring wheats would not thrive. In addition it is declared to be rust resistant. These assertions, at first more or less controversial, have now been generally accepted.

"The Department of Agriculture, in introducing durum, brought about an unexpected result. It had not anticipated the upbuilding of a large industry. Its first intention was merely to find a profitable wheat variety, and a great effort was made to convince millers and the consuming public that flour made from durum was just as good as, if not superior to, any other kind, for bread making."

The milling industry did not take kindly to the new wheat and the article under discussion proceeds to develop the story of how the macaroni industry "emerged, confronted with the necessity of creating its own market.

"Durum found its appointed place, and the destiny of the domestic macaroni industry became simultaneously assured. It is estimated that more than 6000 barrels of durum wheat flour are now converted into macaroni in this country daily, and that there is an annual domestic consumption of more than two million barrels, after reduction to this form of food, chiefly supplied by home manufacture."

In conclusion the author shows how the predictions that choice macaroni could not be produced outside of Italy have been disproved.

Government's Position on Food Value of Meat

SECRETARY of Agriculture Wallace recently appointed a committee consisting of representatives of the Bureau of Animal Industry, the Bureau of Agricultural Economics and the Office of Home Economics for the purpose of establishing a connecting link between meat distributors and consumers.

The "National Provisioner" for November 11, 1922, calls attention to the work of this committee and emphasizes the error of the popular understanding of the governmental attitude toward the food value of meat.

The author of the article quotes from Charles J. Brand, consulting specialist in marketing, U. S. Department of Agriculture, as follows:

"Many persons still hold to the belief which was largely the outgrowth of unfair and misguided propaganda, that meat is not healthy. Medical science has proven over and over that a large number of ills once charged against meat eating are due to infection of teeth, tonsils and other organs.

"The department's position, in brief, may be summarized by saying that meat is wholesome; that the livestock industry is of fundamental importance to permanent agriculture, and hence to the interest of every citizen; and that for health and vigor we should eat well-balanced meals, including a variety of kinds and cuts of meat, making such substitutions as price variations show to be most economical."

Successful Cannery Offer Experience for Benefit of Trade

ACCORDING to Orin Crooker, in "Canning Age" for November, Illinois cannery of sweet corn have established such a reputation for high grade products that a study of their methods is likely to prove helpful to those who desire to make the best use of the men and machinery at their command.

Mr. Crooker begins by acknowledging Illinois's advantage in its deep rich soil, a factor that makes for maximum quantity without resorting to mechanical help.

It is in the matter of quality that the Illinois cannery have accomplished

such noteworthy results. Ceaseless efforts on the part of the canners have resulted in methods of sorting corn so efficient that the product reaches the cutter room entirely uniform and entirely at its best.

Continuing, the author says:

"The Illinois canner has not been without appreciation of the fact that he must keep his costs of handling at this point within reasonable limits. Consequently, he has worked out his system with due regard to the fact that certain arrangements of sorters and trimmers, the proper division of this work, and special lay-out of equipment have an effect not only on efficiency but also on the cost of production. With the exception of some few plants which are under the same general management, there are scarcely two plants in Illinois that follow identical methods in this regard. The grouping of sorters and trimmers differs greatly, while here and there is to be found a canner who has departed radically from the basic idea usually common to such work."

Then follow five diagrams, featuring the processes of sorting and trimming, arrangement of husker machines, measuring system, and devices for grading, with detailed discussion of each.

In closing the author writes:

"The Illinois canner takes more than usual care, perhaps, in all steps of his manufacturing operations. But he has come to feel—and not without reason—that to produce quality, his raw product must not only reach the factory at just the right stage of maturity, but it must be most carefully culled of all stock that is either under or over the proper degree of maturity. No doubt, every canner feels the same."

Function of the Broker in Salmon Canning Industry

THE salmon canning industry has lost millions of dollars, according to a writer in "Pacific Fisherman," for November, 1922, through unskillful efforts on the part of the packers to market their output without the aid of established selling agencies.

The industry is recovering from the general abnormal conditions caused by the wartime disturbance, but business abuses have sprung up during the unsettled period. These abuses must be corrected before the industry can recover entirely and the author of the article in question is of the opinion that one factor likely to prove helpful in this readjustment is the employment of accredited brokers.

"The functions and services of the legitimate salmon broker extend far beyond the mere securing of orders. A comprehensive idea of the matter as viewed from this standpoint is presented by a well-known salmon handler, who says:

"It is the popular conception that

the broker functions merely by bringing buyer and seller together. Many attempt to operate on this basis—rustling orders from buyers, seeking stocks to fill them, and leaving the packer to invoice, collect, make credit investigations and take credit risks, in fact merely standing by the commercial highway and taking an unearned toll. Such a broker does not properly represent the interests of the packer and should not be supported by the packer, even though he sometimes gets seemingly desirable business.

"A legitimate broker, functioning properly, is first of all the packer's salesman. He markets the product to desirable customers. As a salesman he feels the pulse of the market. Not being influenced by a heavy financial load, his judgment is not warped by his wishes, hence he can give unbiased selling advice.

"It may be said that he is always anxious to make sales to get his commission, hence always advises selling. However, if the packer will give an exclusive selling contract to a broker, instead of putting one against another as is all too frequently done now, he will relieve his broker of the necessity of selling always before the other fellow under penalty of losing a commission.

"A broker should be financially responsible, and should assume all credit risks. The packer whose goods are placed with a reliable broker need not investigate the financial standing of buyers, question the terms of sale, nor wait for his money beyond a stipulated time. A broker deserving the name should pay the packer, regardless of the fate of his drafts.

"All detail from the time salmon reaches port comes within the province of the broker."

After detailed discussion of other lines of service which the broker can render the author concludes as follows:

"When the packer establishes connections with a selling agent, he should realize that he is taking a step of vital importance to his business, almost equivalent to taking a partner. The relationship between packer and broker, to result satisfactorily, must be an intimate one. It must have the elements of permanence and stability, which require the highest degree of mutual confidence. As for the agent, he should not only have selling ability, a thorough knowledge of markets and marketing, and facilities for giving complete service, but should also be a man of high business standing and financial stability. He should have reliable trade connections in all important markets, sufficient to enable him to successfully market the goods entrusted to him; and should be competent to give the packer sound advice as to market conditions and requirements. If each packer will select a

broker having these general qualifications, establish with him stable and confidential relations, and give him the exclusive marketing of his pack, it will be found that many of the troubles that have beset the trade for the last few years will disappear."

Railroads Helping in Bulk Transportation of Milk

A WRITER in "Butter, Egg and Cheese Journal" for October 11, 1922, calls attention to the fact that during and since the war there has been a steady increase of shipment of milk by railroad. He says:

"Our railroad terminals have had some linear expansion to take care of this and other food shipment increases, yet the larger part of the added load has been absorbed by increased efficiency in handling. By 'increased efficiency' is meant faster handling and checking of cans, switching of cars, etc.—the limitations of this method are obvious. The necessity of some sort of relief at our congested city terminals is something which comparatively few people appreciate. But from the point of view of the railroads it must be given immediate attention. The real solution is to eliminate this excessive handling—the answer is the bulk method!

"With this thought in mind, the New York Central Lines, in conjunction with the Pfaunder Company of Rochester, N. Y., makers of glass lined steel equipment, invented the container tank car providing bulk handling for milk shipments. By this new method any dairy shipping between 400 to 600 gallons of milk, or multiples thereof, can arrange with the railroad to pick up the container tanks filled with milk, at the country receiving station, and deliver them to the city terminal. Here they will be taken by the city dealer's truck to his plant, to be tested, pasteurized, and bottled (thus eliminating all can handling).

Figures on Increased Milk Tonnage.

"The figures below show at a glance the enormous jump which milk production has taken in 1921, as compared to the three years preceding. Comparing 1920 with 1921 we find that there has been an increase of nearly 10,000,000,000 pounds of milk—5,000,000,000 of which takes the form of increased household consumption. It is difficult to predict, therefore, what the consumption will be in two or three years, in view of the educational propaganda that is being waged in the interests of the dairy products.

	Pounds
1918.....	87,906,000,000
1919.....	90,600,000,000
1920.....	89,658,000,000
1921.....	98,862,276,000

EDITORIAL

A Concrete Plan for Obtaining Uniform Cider and Vinegar Laws

WE are devoting an entire page to one editorial because we believe strongly that the subject discussed — uniformity of food laws — is by all odds the most important that confronts the food industry today.

Last month we printed this question in an editorial on uniform food legislation:

Will some enterprising group of manufacturers set a worthy example for the entire food trade by selecting its own product as a starting point and endeavor by conferences with the state food control officials to bring about a mutual agreement upon a somewhat uniform law which will amply protect the consumers in all states and at the same time relieve the food manufacturer of the hardships suffered by reason of various laws so utterly at variance that what is lawful in one state is unlawful in another?

And we have had an almost immediate response from the American Cider and Vinegar Manufacturers' Association, whose counsel, William W. Armstrong, Rochester, N. Y., says, "I have had such a plan regarding vinegar under advisement for some time."

The statutes of many of the states relating to vinegar are not only conflicting but contain arbitrary physical requirements which in many cases do not insure the purity of the vinegar. To remove these restrictions and at the same time obtain uniformity in the requirements, the American Cider and Vinegar Manufacturers' Association believes that state statutes modeled upon the form which is given below will accomplish the result necessary for the protection of the public and at the same time make the detection of imitation and sophisticated vinegar easier.

The American Food Journal agrees with the American Cider and Vinegar Manufacturers' Association that a statute which defines in accurate terms the various vinegars usually dealt in and excludes all arbitrary physical requirements is more logical and scientific. By thus defining these vinegars and leaving the determination of their physical ingredients and whether they comply with such definitions to the analyst and the developments of analytical science we believe that uniformity in legislation will be secured and facility in detecting imitations greatly promoted.

We commend the American Cider and Vinegar Manufacturers' Association for having come forward with a definite plan upon which food control officials and others interested may confer. Difference of opinion may arise, but at least it is a starting point, and the cider and vinegar association has done something in taking this step which other groups of manufacturers in the food industry can well emulate.

In our next issue we will present a concrete plan by which, we believe, the whole question of bringing about greater uniformity in food laws may be handled advantageously and successfully. Meanwhile let us consider the proposed model bill for cider and vinegar, which Senator Armstrong has prepared:

Proposed Uniform Vinegar Law—An Act to Define Vinegar and the Adulteration and Misbranding Thereof Be it Enacted, etc.:

Section 1. All vinegar made by fermentation without distillation must carry in solution the extractive matter derived exclusively from the fruit, grain, sugar or sirup from which it was derived and fermented, and comply with the following definitions:

The terms "cider vinegar" and "apple vinegar" or words of similar import, shall be construed to mean the product made exclusively from the expressed juice of apples by alcoholic and subsequent acetous fermentations.

The terms "wine vinegar" and "grape vinegar" or words of similar import, shall be construed to mean the product made by the alcoholic and subsequent acetous fermentations of the expressed juice of grapes.

The terms "malt vinegar" or words of similar import, shall be construed to mean the product made by the alcoholic and subsequent acetous fermentations without distillation of an infusion of barley malt or cereals whose starch has been converted by malt.

The term "sugar vinegar" or words of similar import, shall be construed to mean the product made by the alcoholic and subsequent acetous fermentations without distillation of solutions of sugar, sirup, molasses or refiners' sirup.

The terms "glucose vinegar" or "corn sugar vinegar" or words of similar import, shall be construed to mean the product made by the alcoholic and subsequent acetous fermentations without distillation of solutions of corn sugar or glucose prepared from corn starch.

The terms "spirit vinegar," "distilled vinegar" or "grain vinegar" or words of similar import, shall be construed to mean the product made by the acetous fermentation of dilute distilled alcohol derived from grain.

The term "evaporated apple products vinegar" or "vinegar made from evaporated apple products," or words of similar import, shall be construed to mean the product made by the alcoholic and subsequent acetous fermentations of the aqueous extract obtained from clean, sound, unfermented dried chopped apples or dried apple skins or cores.

Section 2. Vinegar which fails to comply with such definitions or which contains any substance or ingredient not derived exclusively from the fruit, grain, sugar or sirup from which it shall so be made, or which contains less than four grams of acetic acid in one hundred cubic centimeters of the vinegar at twenty degrees centigrade, shall be deemed adulterated.

Section 3. The product made by the destructive distillation of wood known as pyroligneous acid, or acetic acid derived from other sources than fruit, grain, sugar or sirups, shall not be sold, offered or had in possession for sale as vinegar or in any mixture of vinegars or compound vinegar.

Section 4. Mixtures of two or more of the foregoing vinegars are "compounds" and packages containing the same shall be plainly marked with the word "compound" together with the proportions of the vinegar so mixed, in addition to the other requirements hereof. No such compound shall be made in imitation of any other kind of vinegar or sold, offered or had in possession for sale.

Section 5. Packages containing vinegar which has been reduced with water must be plainly marked "Reduced to — per cent acid strength," indicating the acidity to which it has been reduced.

Section 6. Every manufacturer or producer of vinegar shall plainly mark each cask, barrel or other container of such vinegar with his name and place of business, the kind of vinegar therein contained, in the terms above defined, and no person shall falsely mark any package containing any vinegar so defined with any other brand or designation or with any additional words, marks or description which shall be false or deceptive in any particular whatever.

(Container law which may be omitted.)

(Continued on next page)

Every person who sells any vinegar, except it be delivered to the purchaser in the unbroken package of the manufacturer shall plainly and conspicuously mark the receptacle or container in which such vinegar is delivered to the purchaser, whether such receptacle or container be furnished by the seller or purchaser, with the kind of vinegar so delivered.

Section 7. No person, firm or corporation shall manufacture, sell, offer or have in possession for sale in this state:

1. Any vinegar so defined which does not comply with such definitions.

2. Any adulterated or misbranded vinegar.

3. Any vinegar or product in imitation of any vinegar so defined.

4. Any vinegar to which any artificial coloring matter has been added of any kind whatever, or which contains any substance or ingredient not derived directly from the fruit, grain, sugar or sirup from which it purports to have been made.

Section 8. Violation of this act shall be a misdemeanor and punished by a fine of not less than \$100, nor more than \$500 for the first offense, and not less than \$500 nor more than \$1000 for all subsequent offenses.

Section 9. This Act shall take effect _____

BOOK REVIEWS

THE HYGIENIC COOK BOOK. By Jacob Arnbrecht. Shaw Printing Company. Battle Creek.

The compiler of these recipes has been careful to avoid extremes in dietary matters, while at the same time he has followed closely the tenets of the vegetarian school. This fact in itself does not limit the usefulness of his book, since no matter what the readers' views on vegetarian diet as an exclusive dependence, he will, if he has kept abreast of modern thought in the field of dietetics, concede to vegetables a very important place in the diet, particularly of children.

This fact once understood he is ready to welcome to his kitchen laboratory the tested recipes contained in Mr. Arnbrecht's volume.

The first part of the book, the chapters on dietetics and nutrition, are unpretentious and for the most part, adaptations of the material furnished by well known scientists. Frankly, these adaptations are so interspersed with matter of interest chiefly to the author that this part of the book will not be taken very seriously. It is in the tested recipes that its chief value lies.

THE NEW DIETITICS, What to Eat and How. A Guide to Scientific Feeding in Health and Disease. By John Harvey Kellogg, M.D., LL.D., F.A.C.S. The Modern Medicine Publishing Company, Battle Creek, Michigan.

Noting the fact that within twenty years there has come into being a new science of dietetics, Dr. Kellogg proceeds to comment exhaustively on the methods employed by this new science, on the leaders in the field and on certain phases of the nutrition problem of special interest to himself and his co-workers.

A paragraph in the author's preface is worth quoting:

"Thanks to the painstaking researches of Pavlov, Rubner, Atwater, Benedict, Chittenden, Mendel, Osborne, McCollum and other investigators perhaps equally worthy of mention, we now possess knowledge instead of assumptions, facts instead of fancies, scientific standards in place of empirical though time-honored notions and sanctions."

It is this clear vision and power of analysis of the literature in his own field that gives to Dr. Kellogg's book its peculiar value. Using his own laboratories for the purpose of testing out new theories and methods as he has, such a man has a fund of data at his disposal, data based on the best possible foundation observations on the human structure and its needs.

After a discussion of the processes of nutritional physiology, Dr. Kellogg takes up food by food the chief articles of our diet, showing the composition, place in the diet and relation to pathological conditions of each in turn.

Diets for special cases are outlined, and the book closes with complete and practical tables on the composition of our commonly used foods. The student, dietitian or other specialist will find the book invaluable.

FOOD AND THE PRINCIPLES OF DIETETICS. By Robert Hutchinson, M.D., Edin., F.R.C.P., Physician to the London Hospital and to the Hospital for Sick Children. Fifth Edition. William Wood and Company, New York.

Every one interested in the problems of food, whether dietitian, physician, distributor or layman, will welcome the fifth edition of Dr. Hutchinson's book. The work has long been a classic and an indispensable member of the food worker's library and now that the author has revised the text in relation to the war time changes caused by famine and soaring prices it is especially serviceable.

The nature, constituents and relative values of foods; the amount of food required in health, influence of conditions on food requirements; animal foods, milk and milk products, vegetable foods, cereals, breads, vegetables, sugars, mineral, salts, water, alcohol, cooking of foods, digestion in health, infant feeding, principles of feeding in disease, some dietetic "cures" and artificial and predigested foods; these are the subjects treated. Such a skeleton outline can give but a faint idea of the book as a whole; the material is so well organized and presented with such a keen knowledge of the needs of the seeker after real knowledge that the reader may approach it with a reason-

able assurance that he will find his questions answered, either directly or indirectly.

Perhaps the outstanding feature of Dr. Hutchinson's work is the scholarly and practical way in which he relates one bit of information to the whole broad subject. For example, in consulting the book on the question of diet in any social disease, he is likely to become so interested in the subject that he will find himself reading what Dr. Hutchinson has to say on the subject of diet as a factor in preventing that disease and others.

ALL ABOUT COFFEE. By William Ukers, M. A., Editor, The Tea and Coffee Trade Journal. The Tea and Coffee Trade Journal Company, New York.

In a sumptuous quarto volume of almost 800 pages, Mr. Ukers tells the story of coffee from every conceivable angle: historical, etymological, botanical, microscopical, chemical, industrial and social.

In his preface the author calls attention to the fact that civilization has produced only three non-alcoholic beverages, the extract of the tea plant, of the cocoa bean and of the coffee bean.

Mr. Ukers has aimed to "tell the whole coffee story for the general reader with the technical accuracy that will make it valuable to the trade." That he achieves his purpose is well attested by the book itself. Merely as a "story" the book is fascinating. Tales of the early history of coffee drinking show how it began in the early centuries and how its cultivation and use were attended by romance unlimited.

As to the illustrations they are marvels of beauty and accuracy. There are handsome color plates showing the coffee plant, reproductions of quaint old wood cuts picturing the coffee houses and customs of Queen Anne's day, views of the plants where coffee is made ready for the market and of the ports where it is sold, working drawings of machinery on factories, reproductions of successful coffee advertising; pictures of coffee-making apparatus; and profuse illustrations for the sections of the book devoted to the industrial and commercial divisions of the field.

Food Flavors: Their Source, Composition and Adulteration

By J. W. SALE¹ and W. W. SKINNER²

PART VI.

(Concluding Instalment)

IT has been indicated in preceding chapters that food flavors should comply with the Federal Food and Drugs Act with regard to composition and branding if they are shipped in interstate commerce, exported to the United States or otherwise entered within the channels of commerce described in the Act. The provisions of the act covering the adulteration of food flavors and other foods are as follows: First: If any substance has been mixed and packed with it so as to reduce or lower or injuriously affect its quality or strength. Second: If any substance has been substituted wholly or in part for the article. Third: If any valuable constituent of the article has been wholly or in part abstracted. Fourth: If it be mixed, colored, powdered, coated, or stained in a manner whereby damage or inferiority is concealed. Fifth: If it contain any added poisonous or other added deleterious ingredient which may render such article injurious to health. Sixth: If it consist in whole or in part of a filthy, decomposed, or putrid animal or vegetable substance.

Each one of these provisions has been violated one or more times and some of them have been and are being violated repeatedly, the small fines which ordinarily are imposed, not always serving to deter the careless or dishonest manufacturer from continuing the adulteration of his products. It should be stated, however, that usually the adulteration of flavors is discontinued when the manufacturer's or importer's attention is called to the matter, and it is quite possible under the statute to take such drastic action against adulterated flavors and other food that it becomes unprofitable to continue their manufacture and sale. Some types of adulteration of various spices, essential oils and extracts have already been mentioned in connection with the specific descriptions of these articles in preceding chapters. Other types of adulterations are set forth in the notices of judgment which are published by the department when court cases are adjudicated.

Adulterations Practiced

We think it will be of interest to enumerate instances of adulterations which the Bureau of Chemistry has found in the course of the routine enforcement of the Federal Food and

Drugs Act. The examples of adulteration which follow do not include all of those which have been detected being only those which are readily available in our files, but they will serve to illustrate in a general way what the purchaser should guard against when he buys spices, essential oils, and extracts. The sophistication of flavors in many cases is accomplished very adroitly, and careful and exhaustive investigation is frequently necessary to detect the manner in which the flavors have been adulterated.

Almond extracts have been found adulterated by the substitution of artificially colored dilute extracts of almond and of artificially colored dilute solutions of benzaldehyde. Dilute solutions of alcohol containing merely a trace of anise oil have been sold as standard anise extracts. So-called birch oil consisting of synthetic methyl salicylate has been offered for sale on numerous occasions. Caraway seed has been adulterated with excess of stems, foreign seeds, fine siftings, sand, mouse excreta, insect eggs, live worms and clumps of worm's nests and with an ergot-like fungus. Cumin seed has been substituted for caraway seed. An artificially colored dilute extract of cassia has been substituted for standard cassia extract. Chamomile flowers have contained an excess of stems, dirt and worms. Maruta cotula (dog fennel), anthemis cotula, (maywood flowers), Roman chamomile, and the entire plant of anthemis nobilis have been substituted for chamomile flowers.

Cinchona bark deficient in alkaloids and with excessive ash has been offered for entry into the United States. Cuprea bark has been substituted for cinchona bark. An article labeled cinnamon oil was found to contain at least 30 per cent of cinnamon leaf oil. Cloves have been offered for sale with a portion of the oil of cloves abstracted and so-called, powdered cloves have been found to consist of a mixture of allspice tissue and exhausted cloves. Dilute extract of cloves is sometimes substituted for the standard extract. Coriander seed has contained excess of stems, dirt, weevil and wormy seeds and Bombay or Indian coriander seeds deficient in volatile oil have been substituted for coriander seeds. Cumin seed has been adulterated by admixture with sand and grit. Dandelion root has been found to contain live worms, foreign roots, and roots spoiled by overheating. Fennel seed has contained an excess of stems and ash, mold, bored, immature and exhausted

seeds. *Foeniculum piperitum* (bitter fennel) has been substituted for fennel.

Whole Japan ginger has been coated with chalk or some similar substance whereby damage and inferiority was concealed. Ginger root has been found to contain white, green and black mold, to be worm eaten, and infested with live insects. Green and spent ginger root have been substituted for standard ginger. Artificially colored dilute extracts of capsicum, as well as extracts deficient in ginger extractives have masqueraded as standard ginger extract. A substance alleged to be a mixture of horseradish and mustard was found to be turmeric and charlock (wild mustard). Washed lemon oil, and an alcoholic solution of aldehydes obtained from oil of lemon grass have been sold as lemon oil. Lemon oil has been adulterated also with alcohol and sometimes washed lemon oil is reinforced with citral and offered as lemon oil. One sample of lemon oil contained sesame oil and another contained 90 per cent of cottonseed oil.

Lemon extracts have been adulterated by substituting artificially colored dilute solutions of lemon oil, artificially colored solutions of citral obtained from lemon grass, by the substitution of terpeneless extract of lemon, and by the addition of unpermitted coal tar colors. Bombay or false mace (*Myristica malabarica*) is a rather common adulterant of genuine mace and an article labeled "mace substitute" consisted in part of a cereal product containing starch. Mace has been adulterated also with mold, insect excreta, sweepings and refuse. Papua mace has been substituted for mace. Ground marjoram has been found to contain an excessive amount of sand and clay. Leaves of *coriaria myrtifolia*, a poisonous leaf, leaves and flowering tops of *origanum vulgare*, and a type of citrus leaf have been substituted for marjoram.

Mustard has been adulterated with turmeric, mustard bran, artificial color and charlock. Rape seed, brown seeds and dirt have been substituted wholly for mustard seed and nutmegs have been adulterated with wormy and moldy nutmegs, and with dust, shells and fragments of nutmeg shells. As in the case of many other extracts, sub-standard nutmeg extracts have been offered as nutmeg extract of standard strength. Ethyl alcohol and lemon terpenes have been substituted for orange oil, and dilute alcoholic solutions of citral have been offered as orange extract. Paprika has been found to contain an excessive amount of ash and added foreign oil and Spanish paprika has been substituted for rosen paprika. Mineral matter, sand, clay, and pepper shells have been offered as pepper. In one case, so-called peppermint extract was found to be a sub-standard article; in another case

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it contained menthol with little or no peppermint oil; and in several instances contained substantial percentages of methyl alcohol (wood alcohol).

A so-called rose extract was an artificially colored solution of oils and alcohol, which contained no attar of rose. An alleged rosemary flower oil was found to contain a smaller percentage of esters calculated as bornyl acetate, and a smaller percentage of total borneol, than the standard of the United States Pharmacopoeia. Saffron has been adulterated with borate, excess of yellow styles and of powdered stamens of *crocus sativus* L. Greek sage (*salvia triloba*), mineral matter, sand, clay and sage stems have been used to adulterate sage. Savory leaves have been adulterated with an excess of stems. Sarsaparilla root has been adulterated with mold, stems, and soil. *Smilax utilis*, native Jamaica sarsaparilla, has been substituted for sarsaparilla. An artificial oil produced from waste camphor oil has been substituted for sassafras oil and thyme oil has been adulterated with turpentine. Analyses of so-called turmeric show that it sometimes contains wheat and arrow root starch, wheat flour and gypsum. Products labeled vanilla extract have been found deficient in vanilla bean extractive matter, to be artificially colored and to consist of vanillin solution or of a vanillin and coumarin solution. An artificially colored dilute solution of benzaldehyde has been substituted for wild cherry extract and synthetic methyl salicylate has been substituted for wintergreen-leaf oil.

Revision of Labels

Some of the adulterations mentioned above may be corrected by revising the label so that the purchaser will be informed as to the character of the product which he buys. For example, an alcoholic solution of vanillin and coumarin colored with caramel in imitation of a standard vanilla extract may be sold in compliance with the statute if it is plainly and conspicuously labeled as an imitation vanilla extract. Other forms of adulteration, e. g., the addition of a poisonous or deleterious ingredient which may render the article injurious to health cannot be corrected by any form of labeling. An example of this type of adulteration is the presence of wood alcohol in so-called peppermint extract.

As we have stated previously, the data contained in this series of articles have been collated from various sources including publications of the United States Department of Agriculture, articles appearing in scientific and trade journals, books by various authors dealing with the subject of flavors, and files and special reports of the Bureau of Chemistry. This broad and fascinating field has only been touched upon by us and we are appending herewith a bibliography which will be of interest to those who wish to learn more about food flavors.

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10. Lemon-grass Oil, Production in United States. (Department Bulletin 442.) 5 cents.
11. Oil, Peppermint, Effect of Cultural and Climatic Conditions on Yield and Quality. (Department Bulletin 454.) 5 cents.
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13. Peppers, American Varieties. (Bureau of Plant Industry Bulletin 6.) 10 cents.
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Application with remittance should be made to the Superintendent of Documents, Government Printing Office, Washington, D. C., for those publications listed above where a price is indicated. Others will be sent on request unless out of print.

Scientific and trade journals, which occasionally or frequently contain information regarding flavors:

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25. American Journal of Pharmacy; 145 North Tenth St., Philadelphia.
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The non-departmental publications listed above are not endorsed, guaranteed or even recommended over others which may contain equally valuable information but which are not mentioned, and no discrimination is intended against other publications covering the same subjects. It should be borne in mind also that the formulas which are contained in many of the publications mentioned have not been tested by us, and it may be that if the directions in these formulas are followed in detail, products will be produced which will not comply with the requirements of the Federal Food and Drugs Act.

England's Botulism Scare Allayed by American Investigation

Recent Outbreak in Scotland was Hurting American Canning Industry—
Dr. Karl F. Meyer Visits Britain to Aid

THERE has been an interesting and immediate sequel to the prolonged and intensive investigation of botulism recently conducted in this country in the way it has served to allay what has amounted to almost a panic in the public mind in Great Britain following the recent botulism outbreak at Loch Maree.

The outbreak of botulism in Scotland, caused by potted wild duck, produced an amount of intensive, inaccurate newspaper publicity, which reflected upon all kinds of canned foods greatly affecting their consumption. In view of the fact that nearly all these foods used in Great Britain are put up by canners in the United States, the sensationalism of the outbreak in an indirect way, was hurting the American canning industry, although the product in question was not packed in the United States. So great was the attention given the case that even our own press began to take up the matter. A New York newspaper followed a sensational article with an editorial line which read: "Have a botulistic sandwich!"

It emphasized what has been said again and again, that any faulty canned product, regardless of its character or origin, injured the entire canning industry, no matter what branch that particular product belonged to, or where the alleged trouble occurred.

British Informed of Results of American Investigation

Realizing this, and the United States having gone through scares similar to that which subsequently prevailed abroad, the National Canners Association requested Dr. Karl F. Meyer, of

San Francisco, acting director of the Hooper Foundation of Medicine, to spend some time in England to investigate their trouble, and to be of any assistance he could. Doctor Meyer was one of the authorities in charge of the investigation of food poisoning recently conducted in this country by the medical schools of Harvard University, University of California, and Stanford University, in collaboration with the United States Public Health Service. The result of our own investigation proved that all canned foods, whether prepared at home or in a large factory, are safe, if, after being put in the cans, they are hermetically sealed and then heated for the time that has been scientifically determined. This investigation covered a period of years, and was only completed a few weeks ago.

Therefore, bearing the latest word on the subject, the presence of Doctor Meyer was welcomed in England. He met Government officials of both that country and Scotland, and men prominent in medical and scientific circles, including a representative of the Company which packed the product charged with causing the outbreak at Loch Maree.

The outbreak was attributed to wild duck paste and those who ate this in the form of sandwiches died in from 17 hours to 6½ days. These cases exhibited the classical symptoms of botulism. Some of the most prominent physicians who were on vacation in the vicinity of Loch Maree, Scotland, where the outbreak occurred, made the examination. The toxin of *B. botulinus*, type A, was demonstrated in one of the sandwiches and in the remainder

of the contents of the glass pot. There is absolutely no doubt that the potted meat was responsible.

Doctor Meyer Accorded Splendid Reception

Doctor Meyer reported that everyone welcomed his investigation, and he had accordingly arranged to make a return trip to still further pursue the subject. He also addressed the food packers in London, and, in addition to this, gave interviews to the London Times and the Manchester Guardian on the subject with which he is thoroughly conversant. The latter publication quotes him, in part, as follows:

Dr. Meyer, who is at present in this country, made a statement the other day on botulism well calculated to reassure the public. No one can speak with greater authority and expert knowledge. * * *

His experiments and study for over three years with an extensive staff have brought him to the conclusion that the dangers of botulism to the world are extremely small. In 23 years in the United States there have been 110 outbreaks affecting approximately 395 people, 249 of whom died. The mortality rate is high, but compared with 150,000 cases of typhoid fever in the United States botulism as a cause of death is utterly negligible. * * *

Dr. Meyer emphasizes that far too much public alarm has been created by the undue publicity given to the Loch Maree case. Inevitably the high mortality rate, the curious symptoms, and the relation of food have "news value," but the rare disease has caused anxiety far out of proportion to its prevalence. "It cannot be compared in any way in its magnitude with tuberculosis or other public health problems."

More About the Butter Standardization Bill

Editor The American Food Journal:

ON page 34 of the October, 1922 issue of your journal there appeared an article contradicting some of my statements on the subject of a butter standard. The article was signed by A. L. McKay, Secretary, American Association of Creamery Butter Manufacturers, and is itself false and misleading in many particulars. Mr. McKay said in part:

In one of your recent issues there appeared an article by Dr. Abbott stating that if the present butter bill, H. R. 12053, were enacted into a law, it would increase the butter production of the country 45,000,000 pounds without adding anything to the food value or, in other words, the writer, I presume, wanted to convey the impression that the creamerymen would be selling 45,000,000 pounds of water. This statement is so at variance with the facts that I am surprised that such a statement should be made.

Mr. McKay knows or ought to know that the difference between a butter standard of 82½ per cent fat and 80 per cent fat is 2½ per cent fat. If Congress adopts 80 per cent as the standard proposed by H. R. 12053, there will be just 2½ per cent less fat in a pound of butter than there is in an 82½ per cent standard. It will be made up with water to the amount of 45,000,000 pounds annually as I have stated. The present Federal standard is 82½ per cent fat. It is true that this standard is not an act of Congress. I have never said that it is an act of Congress. But it is an act of the Secretary of the U. S. Department of Agriculture acting under the authority of an act of Congress directing the said Secretary to make standards of foodstuffs.

The 82½ per cent butter standard was first published by the Secretary of Agriculture in 1906. It was reaffirmed and published by the Secretary of Agriculture, David F. Houston, in 1919, after the Joint Committee on Definitions and Standards had conducted an investigation into the subject for a period of years. More than that, this standard was concurred in by the Association of American Dairy, Food and Drug Officials and by the Association of Official Agricultural Chemists. Every member of the Joint Committee except Dr. Alsberg signed the 82½ per cent standard. He voted for it and his failure to sign it was undoubtedly an oversight. Dr. Ladd, now a United States Senator, who was a member of the Joint Committee, signed it. Notwithstanding these facts, well known to Mr. McKay he says:

Secretary of Agriculture, Hon. David Houston, who followed Secretary Wilson in office, issued a circular on November 10, 1919, which read as follows: "The Federal officials do not recommend the seizure when butter contains as much as 80 per cent milk fat and is otherwise in accordance with the law. All butter

that has been seized under the Federal food and drugs act contains less than 80 per cent of milk fat and a proportionately higher per cent of water."

Secretary Houston did not himself put out any such "circular." He did himself put out the 82½ per cent standard in 1919, and no Secretary of Agriculture before or since has ever changed it.

The "circular" referred to was simply a press notice, a newspaper story, indicating an administrative tolerance with respect to the 82½ per cent standard. No such tolerance is provided for in the H. R. 12053, a fact that is very well known to Mr. McKay. It is so well known that a big percentage of butter makers are opposing the bill on that ground. They point out that if 80 per cent is made the standard, butter will contain only 79 per cent, or maybe only 78 per cent fat, because courts, juries, and even officials, will allow butter makers a reasonable tolerance.

The "circular" referred to was not a revocation of the 82½ per cent standard. Mr. McKay knew that when he contradicted me, for the so-called "circular," headed, "WATER SOLD AT 90 CENTS A POUND" (the heading is significant) contained the following paragraph:

The sale of water and salt at the price of butter is not only a fraud upon the consumer and an unnecessary burden in these times of high prices, but is demoralizing to the butter industry, the officials claim. The standard for butter which is used as a guide by the Federal and most of the State and city food officials requires that butter shall contain not less than 82.5 per cent milk fat. This leaves 17.5 per cent for salt, coloring matter and moisture. On the average something less than 16 per cent will represent moisture. Butter that contains appreciable quantities of water above 16 per cent contains excess water and necessarily has less milk fat than the standard requires.

The circular closes as follows:

The test of the official standard for butter follows: Butter is the clean non-rancid product made by gathering in any manner the fat of fresh or ripened milk or cream into a mass, which also contains a small portion of the other milk constituents, with or without salt, and contains not less than eighty-two and five-tenths per cent (82.5 per cent) of milk fat. By acts of Congress approved August 2, 1886, and May 9, 1902. Committee except Dr. Alsberg signed say so, that the only time Congress a good texture. "The apostle of the Manufacturers.

Mr. McKay always has a great deal to say about what some Secretary of Agriculture told him personally, that they would not enforce the 82½ per cent standard, or that they would change it, or have it changed by the Joint Committee on Definitions and Standards. I have never been quite so chummy with the Secretaries of Agriculture as that, so I do not know what they told him. I have to go by the

record. But if the 82½ per cent standard were not a real standard, as Mr. McKay says, and if each one of the Secretaries of Agriculture has been opposed to it, as he says, why has it been left on the record these sixteen years? Under such circumstances, why did Mr. McKay not have it repudiated by the U. S. Department of Agriculture before numerous states adopted it by law or by administrative procedure?

I was a member of the Joint Committee in both Houston's and Meredith's administrations. Neither one of them ever presumed to tell any member of the Joint Committee what was or was not a proper standard for anything. I do not know what Mr. Wallace has done. But it should be noted that the standard above quoted does not give the figures 80 and 16 unqualified. It reads, "all tolerances provided for," etc. That is intended to be and would in practice be quite a different standard from the one proposed in H. R. 12053.

Mc McKay knows, but he did not say so, that the only time Congress has ever spoken on a butter standard, it passed a law in 1898, operative only in the District of Columbia, making the standard for butter 83 per cent fat and 12 per cent water. If it was right for the District of Columbia, why not for the whole country? The answer is that at that time Congress was not committed to the policy of taking over the police powers of the States in such matters. And the "Apostle of the Pump" was not on the job then. That was in the days before science had revealed the secret of successfully substituting water for butter fat in butter. About that time a young professor of butter making went to Europe. He caught on to a trick or two over there. One was how to put a little more water in butter successfully. That is, so it would not run out and so the butter would have a good texture. "The Apostle of the Pump" came back to America and started some missionary work in this fertile field. His doctrine spread and his disciples multiplied. They are now asking Congress to give them a new dispensation of 80 and 16 unqualified. Later on they may ask for 75 and 20 flat.

Mr. McKay referred to those foreign countries that have a butter standard of 80 and 16. He never refers to those foreign countries that have higher standards. And he never tells you that while Denmark, the great producer of good butter, may, according to law, have 16 per cent water in her butter, she never exports anywhere any butter that contains that much water. They know they can market good butter at a good price anywhere.

Keep the record straight, Mr. McKay.

J. S. ABBOTT,
Secretary, Institute of
Margarin Manufacturers.

American Specialty Manufacturers' Convention

(Continued from page 12)

presented in Alabama was of special interest. There has long existed a statute in that State requiring the qualification of foreign corporations for the privilege of doing a local business and imposing a tax upon them. This law has not been actively enforced in the past, and as a result but few manufacturers complied with it.

The Alabama Tax Law

"During the past year, the State Tax commission and the Attorney General began a vigorous campaign to compel compliance with this statute. The Alabama law provides for the payment of a penalty of \$1,000 upon such failure of compliance. The state, however, offers to accept the payment of a compromise penalty in the sum of \$250. The question then arose whether this law is valid, and, if so, under what circumstances a manufacturer is subject to it. The matter was

submitted to our counsel, who advised that the law is valid and applies to and may be enforced against any manufacturer who either carries a local stock in Alabama for delivery to Alabama dealers in pursuance of order therefore or solicits business from Alabama retailers for the account of and delivery from local stock by Alabama wholesalers.

"Consequently, if a manufacturer desires to continue in local business in Alabama, there is nothing for him to do but to pay the compromise penalty and qualify under the Alabama law. The state has agreed, however, not to impose any penalty upon any manufacturer who voluntarily offers to comply with this law and from whom the penalty has not previously been requested. This ruling will result in saving many thousands of dollars to our members.

"It is proposed to revise the Alabama foreign corporation law at the

forth-coming session of the Alabama Legislature, and the Attorney General of Alabama has agreed to submit the draft of this proposed revision to our counsel for review. This will permit us to advise the state to the end that an equitable law may be enacted.

"We are grateful to the Alabama Wholesale Grocers' Association and to R. H. Bond for the helpful assistance they have given to Mr. Sweet and his committee in this important matter."

In closing, Mr. Mason said:

"The association is, as it must always be, the guardian angel of the valiant and active champion of the ideals of the industry, working solely to the end that such ideals may be realized, whereby the industry may render an increasing service to the public. The association is a great moral force in and behind the industry. It must always stand unflinchingly for the right."

Shortcomings of the Competitive System Pointed Out

"SURVEYING the field of past endeavor, it must be apparent either that the competitive system will not accomplish the results expected of it or that we have not put the principles of that system properly and thoroughly into operation," said Nelson B. Gaskill, chairman of the Federal Trade Commission. "It is my conviction that the fault lies not with the competitive system properly understood and thoroughly applied." Mr. Gaskill spoke in part as follows:

"We developed as an industrial nation under the system which we inherited, identified rather than described as the competitive system, opposed to monopoly and separated on the other hand from the communistic plan. This was crystalized by the adoption of the Sherman law, which, by prohibiting the effort to set up a monopolistic state, negatively at least, embodied the principles of the competitive system in our jurisprudence. The Federal Trade Commission act and the Clayton act emphasize and clinch this stand.

"Surveying the field of past endeavor, it must be apparent either that the competitive system will not accomplish the results expected of it or that we have not put the principles of that system properly and thoroughly into operation. We are already in the midst of a process of

abandoning as worn out failures some of the methods which have been tried over and over again because they have failed to produce results which stand comparison with the ideal. On the other hand and in the hitherto undeveloped field, comes the co-operative movement, appearing in many forms, a solidification paralleling organization of labor and of other industries.

"It is my conviction that the fault lies not with the competitive system properly understood and thoroughly applied. I find no reason to advocate an abandonment of the Sherman law or a change even to a state of qualified monopoly under governmental supervision. I am persuaded that we can work out our salvation on a basis of private ownership with a steadily diminishing quantity of governmental supervision or regulation.

Both Buyer and Seller Must Get Fair Return

"The fundamental proposition on which the whole of the competitive system rests is that under perfectly free competition the value or selling price of everything equals or is perpetually tending to equal, the cost of its production. That is to say, when the conditions under which anything is produced or service rendered are those of free competition, then each man will get a fair return for his service or his commodity.

"Some time ago I advanced the proposition that as to a seller the fair return could be measured as a competitive factor by the sum total of cost up to the moment of sale and that as a matter of fair competition, no sale should be made below cost except in emergent circumstances. I stated that the true competition lay in variation of margin over cost. Of course this was only part of the proposition because it does not consider the possible result to the buyer, who also must receive a fair return.

"This requires of the buyer a voluntary renunciation of a possible alternative cut-below-cost bargain or if that be eliminated, an acquiescence in the seller's price. If the buyer refuses this renunciation of what has been termed 'natural liberty' to get as much as he can for as little as he must give the logical extreme of this attitude is the buyer's strike.

"The seller may, on his part, in concession to a fair return to the buyer, voluntarily renounce some part of a profit which he might exact, so that each giving up something of a possible exaction an equilibrium is established. But if the seller also refuses to renounce something of what he might possibly exact the logical development is a combination with other

sellers to fix and maintain a selling price.

"If both parties to this supposed transaction exercise this element of voluntary renunciation the principle of the competitive system operates and each receives or constantly tends toward the receipt of a fair return. But if either declines to do so there exists not a faulty operation of the competitive principle but a departure from it.

"The situation then becomes a struggle for the power of repression of the opposing force, an effort to compel renunciation, which is the essence of monopoly. This conflict brings organized society into the arena and

through the orderly processes of legislation, it endeavors to prevent the compulsory renunciation from being enforced.

"You see, therefore, that the competitive principle necessarily is reciprocal, the fair return to the seller can be no more than a fair price to the buyer and each must exercise the element of voluntary renunciation to some extent.

"Nor is there any fixed standard which can be raised by which either can be measured. Each individual is at once a buyer and a seller, a producer and a consumer. He must in each capacity be willing to pay a fair

return of what he gets, take no more than a fair return for what he gives.

"This is no juggling with words. The working out of a selling price which will be fair to both buyer and seller is individual and special, not general. It must be met by each on the terms of his own case. And the sum total of response must reasonably approach in result the conditions under which there is peace with the ideal. The failure of the individual to assume this responsibility and to discharge it requires the entrance of the agency of organized society, government, instituted for the purpose of securing the declared ideal."

Supreme Court of Reason Must Settle Resale Price Maintenance, Says Charles Wesley Dunn

DISREGARDING abstract economic theory and technical rule of law, is it reasonable and just to deny to the manufacturer the ability simply to protect his legitimate and useful business and to safeguard the real interest and welfare of his customers, both trade and consumers, by resale price maintenance?" asked Charles Wesley Dunn, counsel of the association in his address, which dealt at some length with the entire resale price controversy. "The law upon resale price maintenance," concluded Mr. Dunn, "will never be settled until it is settled right, and it will never be settled right until it is fairly adjudged and settled before the Supreme Court of Reason." Mr. Dunn said in part:

"Resale price maintenance, as it is popularly known, means, in trade practice, precisely what it says, to wit, the resale of merchandise at a price set by the manufacturer or other previous seller and thus and otherwise maintained by him.

"The general law upon resale price maintenance, as defined by the Supreme Court of the United States in the cases adjudged by it under the anti-trust acts, principally in the leading Miles, Colgate and Beech-Nut cases is this: A manufacturer or trader engaged in an entirely private business wholly free from any suggestion of unlawful monopoly and acting solely in pursuance of his own judgment, independently exercised, may lawfully refuse to sell his own merchandise to all who either do not charge the resale prices suggested by him or resell to those who do not charge such prices, since he is thereby but and no more than exerting his fundamental right simply and freely to select his own customers, simply and freely to decline to sell his own private property for any or no reason.

"And, of course, he may announce, in advance his intention to do what he has the lawful right to do. But it is unlawful for him to go beyond a

simple refusal to sell and either enter into an agreement or a combination or a conspiracy with his customers, whether it be express or implied, or use a method of competition which involves co-operation with them to maintain or enforce resale prices fixed by him and thereby to prevent those who do not resell at the indicated prices from securing his merchandise and others from securing it at less than such prices.

"If such an agreement, combination, conspiracy or co-operation is found to exist, its validity is not saved by the fact of the reasonableness of the prices maintained or the good motive actuating the manufacturer or trader in maintaining them or the approval of his policy by his customers.

Difficult to Define Application of the Law

"It is not difficult to state the law, but it is difficult, indeed, it is impossible, accurately and conclusively to define, in advance, its complete application, from its condemnatory aspect. In illustration: No one knows or will know all the conduct transcending and in excess of a simple refusal to sell which constitutes the co-operation condemned, until the Supreme Court finally decides.

"And we venture to say that a review of the opinions of that court, from first to last, will fail to disclose language more indefinite, uncertain and baffling, as to its meaning and application, than that used in its opinion in the Beech-Nut case in defining the required modification of the commission's order, therein challenged, to prevent only the use of 'co-operative methods' to maintain or enforce resale prices.

"We cannot conceive of a term more capable of divergent and diametrically opposed construction than 'co-operative methods,' when construed in the light of actual trade practice.

"Moreover, this law can by no means be characterized as final, to the extent that it condemns the use of 'co-operative methods' to maintain resale prices where the so-called 'co-operation' pivots upon and is essentially and ultimately effective solely because of the pursuit of the simple refusal-to-sell policy and is wholly free from restrictive agreements, since it was established in the Beech-Nut case by the narrow margin of a five to four decision, and of the five majority justices in that case two have since resigned, and a third will shortly resign, as we understand, whereas the four dissenting justices remain.

"How the Supreme Court, as then constituted, will decide this limited 'co-operation' question when it is again presented for review, as it will be, the future alone will tell. Of this, at least, we are convinced: The court will firmly maintain that the recognized right simply to refuse sales to dealers who either do not charge the suggested prices or sell to those who do not charge such prices is a real and practical right, and not an abstract conception or a legal fiction, a right that may be freely exercised and fully enjoyed in the practical conception and actual operation of trade and commerce, with all that that implies, if and where it is exercised, within the broad limitations prescribed by the anti-trust acts, which are that it must always be independently exercised in the course of a business free from unlawful monopoly. Any other construction would reduce the law to an absurdity and directly challenge common sense and reason.

The Crux of the Beech-Nut Case

"It is manifest from this review of the existing Federal law that it prohibits, not the entire practice of resale price maintenance, however pursued, but only the use of particular means to pursue it, viz., means involving agreement, combination, conspiracy or co-operation by and between a trader and

his customers for such purpose. This question was squarely presented and decided in the Beech-Nut case.

"There the Federal Trade Commission ordered the Beech-Nut Packing Company to cease and desist 'from directly or indirectly recommending, requiring, or by any means bringing about the resale of Beech-Nut products by distributors, whether at wholesale or retail, according to any system of prices fixed, or established by respondent and more particularly by any or all of the following means:

"1. Refusing to sell to any such distributors because of their failure to adhere to any such system of resale prices;

"2. Refusing to sell to any such distributors because of their having resold respondent's said products to other distributors who have failed to adhere to any such system of resale prices;

"3. Securing or seeking to secure the co-operation of its distributors in maintaining or enforcing any such system of resale prices;

"4. Carrying out or causing others to carry out a resale price maintenance policy 'by any other means.' This order was patently designed and unquestionably effective, if valid and enforced, to suppress the entire practice of resale price maintenance by whatever means it may be pursued. But the Supreme Court said: 'No this order is too broad since it forbids a simple refusal to sell; it should have been limited and, consequently, must be modified to require the company to cease and desist from using only co-operative methods—whatever they may be—to prevent others from obtaining its products at less—not more—than the prices designated by it.'

A Conflicting Verdict

"Hence, the law is effective, in practice, to permit and approve resale price maintenance when accomplished by one method and to prevent and condemn it when accomplished by another. This regardless of the fact that the economic purpose and result are precisely the same, in each instance, the difference being that of method alone.

"It is manifest, therefore, that this law rests and turns upon a technical principle of law, and not upon the broad and practical ground of economic cause and effect. That principle is the right of freedom to trade, the right of the owner of an article that passes from hand to hand, whether manufactured or purchased by him, freely to sell it, as and to whom he pleases. And it is under the guise of that principle that the court upholds the simple refusal to sell policy and condemns resale price maintenance agreements and co-operation.

"But the practical result, with respect to the effect upon the trade and public, is precisely the same in each instance. And however consistent, firmly supported and reasonable this law may be from a technical legal standpoint, it is certainly highly in-

consistent, directly in contradiction and conflict with itself, and unreasonable from a practical standpoint, whether measured in the light of the approval or disapproval of the practice of resale price maintenance.

"And this law will continue to be at odds and war with itself in its practical application, since the principle of the legality of a simple refusal to sell policy at one extreme, and the principle of the illegality of resale price maintenance agreements, at the other extreme, is undoubtedly so firmly settled as to be subject to no prospective modification by the Supreme Court in the construction and application of the present anti-trust acts. In between these extremes is a broad twilight zone of conduct, a dangerous no-man's land, the legal limitations of which must await definition by the Supreme Court in future cases.

Some Resale Prices Legal

"Resale price may be perfectly and freely accomplished, in effect, by sale upon consignment or through agents, whereby no title passes in the first instance, which plan is generally pursued as for example in the case of the merchandising of automobiles. Likewise resale price maintenance may be effectually accomplished within the scope and protection of the patent law. And of course the manufacturer who sells directly to the consumer, such as the mail order house, freely fixes the prices paid for his products by the consumer because they are his own.

"Consequently the fixing of the retail price for his products may be the unquestioned privilege of some manufacturers and the forbidden practice of others and resale price maintenance may be a crime or a virtue depending wholly upon the method of merchandising employed. If you pursue the practice of resale price maintenance one way, the Henry Ford way for example, you are a good and leading citizen and a potential candidate for a term as President of the United States at Washington; if you pursue it another way you are a criminal and a potential candidate for a term as a prisoner of the United States at Atlanta.

"Mr. Average Layman will probably say that a law which is so unequal and and contradictory in its privilege and liability when measured by the result of its practical operation is not only unreasonable but also unjustly discriminatory. And we would not dispute that statement.

"As a result of the limited application of the law and because of compelling economic considerations the fact of the matter is that resale price maintenance is a common practice today, throughout the length and breadth of the land in the sale of standard merchandise identified in the public mind by trade mark, name or brand. It has always been a common practice in the modern sale of such merchandise. In short, we are today everywhere confronted with the fact of uniform resale prices for standard identified merchan-

dise which directly results from the act and influence of the manufacturer. And if it be said that resale price maintenance is inherently wrong if not illegal, however effected, then we are a nation of wrongdoers, law breakers and criminals and the remedy is to indict the entire industry and trade.

The Beech-Nut Case

"Take the Beech-Nut case in illustration. That case probably involved the most severely and thoroughly contested litigation upon this subject in history, extending over a period of three years. The Supreme Court of the United States carefully noted these arguments, presented orally and in extensive briefs and then forthwith proceeded to argue among themselves, finally agreeing to disagree.

"Four of the learned justices held that the company was wholly right and its conduct free from any wrong or detriment, whereas five held it was only partially right which evidences the fact that our highest court is as unsettled as to the law as the law is unsettled in itself. And when this great and costly legal battle is over and the law as now so narrowly defined is enforced and strictly obeyed, what is the practical result? Beech-Nut gum retailed at 5c before and it retailed at 5c after.

"And Mr. Average Layman seeing this result and noting the almost even division of opinion of the highest and most learned court in the land upon the public effect of the resale price maintenance policy in issue, scratches his head, searches his puzzled brain and then exclaims in the familiar words of the famous character in Mr. Cohan's well known play, 'The Tavern,'—'What's all the shooting about?'"

English Practice

The Sherman act, the source of the Federal law upon resale price maintenance, is founded upon the common law originated in England and adopted in this country as the basis of our jurisprudence. But the English common law upon this subject is directly opposed to our Federal law. The highest courts of England have squarely held that it is lawful for a manufacturer to contract with his dealers to fix, maintain and enforce resale prices for the products; that such contracts do not involve an unreasonable restraint of trade at common law and, therefore, are not obnoxious to the public interest and policy.

"To the familiar argument that these contracts unduly restrain the trade of the dealers the High Court of England tersely replies in substance: 'What is restraint of trade as regards the dealers is really but the liberty of trade as regards the manufacturer. It is just as much and no more a restraint of trade for the manufacturer to say that he will not sell at all as to say that he will not sell except subject to such contract.'

"Moreover, in this country, the Supreme Court of several representative states, including Kentucky, Iowa, California and Washington, have likewise

squarely upheld the validity of such resale price maintenance contracts where independently effected by a manufacturer with his dealers in the course of a private business free from unlawful monopoly and denied the contention that they involve an unreasonable and therefore, unlawful restraint of trade at common law and, under the local anti-trust act, that they are obnoxious to the public interest and policy.

"Hence it is established that high judicial opinion upon the reasonableness of the restraint arising out of such resale price maintenance contracts, when tested by the paramount consideration of the public welfare, is sharply divided and diametrically opposed, not only as between the courts of this country and England, but also as between the Federal and state Courts here; that resale price maintenance is approved as beneficent and may be thus freely and lawfully practiced in England and in the course of domestic commerce in several of the leading States of the United States, whereas its similar practice in the course of interstate commerce constitutes a criminal offense subject to a heavy penalty of fine or imprisonment, or both; that what is a crime in the United States is a virtue in England; that what some citizens of the United States are freely permitted to do without impunity, others are punished by fine or imprisonment and disenfranchisement for doing; in short, that the practice of resale price maintenance, like a chameleon derives its legal color from the method and locality of its pursuit.

Maintained Prices Not Wrong

"Who can reasonably say, in view of these facts, that resale price maintenance practiced within the broad and approved limitations stated, is unquestionably inherently wrong in principle? Who can reasonably defend a law that when applied to precisely the same method, based upon precisely the same legal foundation and enforced against a common people under a common government is good or bad according only to the geography of its jurisdiction, depending upon whether the method is used in commerce in or between the states?

"Further, we would be interested to see the proof of the fact, if asserted, that the cost of living to the consuming public is higher in California, Washington, Iowa and Kentucky because of the liberal law in those States upon resale price maintenance. And our good and sincere friend, Mr. Average Layman, pondering upon these facts, is led by the influence of a popular savant abroad daily to repeat over and over again, 'Every day, in every way, I am becoming more and more perplexed.'

The Supreme Court of Reason

"The conclusion from this or any review of the present law upon resale price maintenance and its application, is this: If and when the practice of resale price maintenance is placed on trial for its life before the Supreme

Court of Reason, it must be adjudged, if it is to be adjudged wisely, justly and rightly, solely upon the basis of the relevant and controlling facts, solely upon the basis of its economic cause and effect. And what are the outstanding relevant facts? They briefly are:

"1. Resale price maintenance is practiced by the manufacturer in the sale of merchandise identified in the public mind by his trade mark, name or brand, as distinguished from non-descript or maverick merchandise.

"2. The interest of the manufacturer of such identified merchandise does not cease with his own sale, with the mere formality of the transfer of title to the physical article, but continues real and unabated throughout the entire course of its distribution. This is manifestly so because the merchandise bears upon its face the imprint of his good name which distinguishes it before all the world, guarantees its integrity and value and sells it in preference to all other merchandise, which is the visible representation of the accumulated good will of the public, both trade and consumer toward it.

"3. When the manufacturer sends such merchandise out into the channels of commerce he commits its good name and fair reputation to the keeping of the dealers who resell it. And if they abuse this trust and by a wrongful and detrimental act prejudice the name and reputation of the merchandise with either the trade or the consuming public, he who ultimately suffers the certain loss resulting from this disfavor of the purchasing public, upon whose favor he must depend for existence and success is the manufacturer.

"4. A dealer can do no greater injury to the good name and fair reputation of such merchandise and no greater wrong to either the manufacturer, the trade or the consuming public, than to charge a price therefor which is either so excessively high as to be immoral and repel buying or so unfairly low as to demoralize trade in it and make its general sale unprofitable and hence undesired. And such prices may be and are a daily reality.

"With respect to the immediate detriment and ultimate destruction that follow unrestrained and unfair price cutting, we can do no better than to quote the strong and authoritative statement by the Federal Trade Commission in the course of its special report to Congress upon this subject in 1919, to wit: 'The consuming public does not enjoy benefits by unfair price cutting to compensate it for the injuries following demoralization caused by price cutting. This for the reason that in the long run, unrestrained price cutting tends to impair, if not destroy, the production and distribution of articles desirable to the public. * * * Unrestrained price cutting is not in the public interest.'

"5. The manufacturer practices resale price maintenance in sheer self-defense against the wrong, evil and detriment of unfair price cutting in the

trade and simply as a remedy for it. There is no present relief elsewhere or otherwise.

Is the Court Reasonable?

"With these facts before us, and disregarding abstract economic theory and technical rule of law, we ask: Is it reasonable and just to deny to the manufacturer the ability simply to protect his own legitimate and useful business and to safeguard the real interest and welfare of his customers, both trade and consumer, from this unquestioned wrong, evil and detriment, by refusal, agreement, or what-not, if and so long as he acts independently and in the course of a private business wholly free from any suggestion of unlawful monopoly?

"We say no, not so long as the good old Anglo-Saxon principles of a remedy for every wrong of justice and fair play remain not so long as the judgment is based upon reason and common sense.

"But, it is said, to permit the manufacturer this freedom will result in preventing the public from enjoying the benefit of price competition in the resale of such merchandise and in enhancing their prices to the public.

"We reply: First, a restraint upon the future alienation of such merchandise is justified if in the interest and welfare of the whole public, consumer, dealer and manufacturer alike. And, we submit, this restraint is in the public interest, and welfare of the whole public, since the gain derived from it outweighs the gain derived without it.

"Second, so long as a state of free and open competition prevails in the manufacture and sale of such merchandise and they are wholly free from unlawful monopoly, the manufacturer cannot set an unreasonably high price. If his price is unduly high, he loses the business to his competitor. If his price is unduly low, he goes out of business. Irresistible economic forces control his action and amply protect the public in it. The manufacturer has always set his own price. And we have yet to learn that this freedom is dangerous and detrimental.

"Third, resale price maintenance has been and is commonly practiced, directly and indirectly, as we have seen, within the complete protection of the law. Where is the proof that the public of the United States and of England has unduly suffered by reason of it? On the contrary, we see the most active and relentless competition in price on the part of the manufacturers on every side.

"It seems to us that the confusion of thought and law upon this subject with which we are confronted, arises out of the application of abstract economic theories and technical principles of law rather than the application of the rule of reason based upon the plain existing facts.

"The law upon resale price maintenance will never be settled right, until it is settled right and it will never be settled right until it is fairly adjudged before the Supreme Court of Reason."

Simplification of Containers and Uniform Invoices Urged by Wholesalers' President

"WE, as distributors, earnestly urge and hope that the manufacturers and producers of food products will take hold of simplification work with the purpose of producing as cheaply as possible and placing food products in the hands of the distributors to move on to the retailer as cheaply as possible," said J. W. Herscher, president of the National Wholesale Grocers' Association, who also urged better containers and uniform invoices, as among needed reforms. Mr. Herscher spoke as follows:

"These annual conferences, primarily concerned with promoting an exchange of ideas, should not be wasted entirely in rhetoric or oratory. You certainly have a more serious purpose in calling your conventions, and so do the members of the National Wholesale Grocers' Association.

"I regret to report that, in spite of the initiative and great effort of the economy conference committee and the containers committee of our association, little progress of a practical nature has as yet been made. We have before us at this time, however, a communication from the Hon. Herbert Hoover, Secretary of the Department of Commerce, explaining that the Division of Simplified Practice, at the suggestion of several large manufacturers, intends to take up the problem of simplification of containers. The department has made known its desire to act as a centralizing agency in bringing producers, distributors and users together and to support recommendations, on simplifications of benefit to all concerned. This conference has been suggested for the week of January 15, in Washington, and invitations have been sent to all representative associations and large manufacturers of containers of all kinds.

"Of course, we have accepted. It had become evident to us that this national problem must be attacked with the determination of getting results. The National Wholesale Grocers' Association has been ready and is still ready to move forward in this work.

"I have nowhere heard the necessity of simplification better stated than by Mr. Hoover himself in this masterly paragraph:

"We are, in a broad sense, confronted with a great many economic difficulties—the necessity to maintain a high wage level, the consequent necessity to reduce all processes of manufacture to the lowest possible costs, and under the compulsion of eliminating every possible waste of industry itself. There is one thing that stands out about American industry that comes up daily to the department and that is the remarkable efficiency

of the individual industry and the very considerable inefficiency of collective industry. If we had the same native efficiency collectively in this country that we have individually we would have no difficulty in maintaining our own in foreign or international commerce, of maintaining the high wage levels and the high standards of living, and it is only by virtue of some prompt action that we can hope to secure some fundamental readjustments that the country must have."

"We, as distributors, earnestly urge and hope that the manufacturers and producers of food products will take hold of this simplification work with the purpose of producing as cheaply as possible and placing food products in hands of distributors to move on to the retailer as cheaply as possible.

"We have always been and still are bitterly opposed to commercial bribery in any or all its forms. We believe that the Federal Trade Commission should be highly commended for its activity in combating this evil. Free deals, or "something for nothing," will ever remain a business anomaly.

"We also want again to urge upon you the adoption of an invoice generally uniform in size and style. It would be a great boon to the wholesale grocer, receiving invoices from every state in the union, if the forms were unified and simplified.

"We urge that such information as date, discount for cash terms, when delivered, if prepaid, date of buyer's order, be consistently grouped together, no matter whether it is in the right or left hand upper corner. Unnecessary information should be eliminated on invoices, while essential information as listed above should appear in such a way that it could be found and grasped at a glance.

"It is most helpful in avoiding breaking of shipping packages or contents to follow the parcel post weight regulations. Fibre cases should be stencilled 'this side up' or 'end up,' so that goods will be stacked carefully."

Mr. Herscher discussed at some length the so-called packer's consent decree. He then continued:

"As a result of the work of the Joint Commission of Agricultural Inquiry, and particularly the intelligent direction of that work by Congressman Anderson and Secretary Paull, the public has begun to talk in terms of functions and to study the various essential functions that must be performed between the point of production and point of consumption. When a public discussion gets upon this basis, the wholesale grocer has a right to feel optimistic. As a result of this splendid report of the Joint Commission of Agricultural Inquiry, it is no longer necessary for the wholesale gro-

cer, or the retail grocer to force his belief upon the public. The Government itself has presented the wholesale grocers' case.

"But, where you find roses, you also find thorns. And, I would be remiss in my duties if I failed to refer to some strange inconsistencies that have been developed by wrong policies. I am sure that I am expressing the general sentiment of the entire food trade when I say that, where a manufacturer decides upon a certain selling policy, he should stick to it, and give it a real test. If he wobbles, demoralization results. If a manufacturer devises his own selling plan, and if it is fair and just throughout, and it is kept so, I have enough faith in the wholesale grocer to believe that he will be a loyal distributor, as well as a most effective outlet that can be found.

"Some unscrupulous specialty salesmen will lose ground in the opinion of distributors, whose friendship and respect you value. It is demoralizing for a representative of a highly advertised quality product to make a practice of going into a community and hawking or auctioning off to the lowest bidder the result of the specialty effort. I have been asked to put my finger on the factor or policy that I think most responsible for the actions of the specialty salesmen which are proving so unfair to those who distribute your products.

"One of the publications of the trade said not so long ago that 'food advertising is too frequently looked upon solely as a force for selling goods. It is more than that; it is an educational factor of increasing importance.' While sales are largely what manufacturers of specialty goods are advertising for, is not this statement an indictment against present advertising methods in relation to food?

"Most of the food specialties are upon the shelves of the 350,000 retail grocers in this country. Yet little, it might be said no effort, is added to advertising, offering to these distributors the needed work of suggestion to the housewife who has read the advertisement. Why is this added word not provided by the specialty salesman?

"There is clearly a lack of the tying up of the needed word with advertising from behind the counter. Advertising is expected to do all the work of creating, remembering and asking for the product—a task too great to expect. If, added to the educational factor of advertising, there was the further education of a better knowledge of the goods—how made, the need and how this need was met in the product—in other words, sufficient knowledge to create a desire to make known, especially when knowing and making it known meant added sales and profits, and added incentive would be given."

Milk Powder—One of the Newer Manufactured Dairy Products

By L. M. DAVIS

Assistant in Marketing Dairy Products, United States Department of Agriculture

MILK powder is one of the newer commercial dairy products. Although its commercial manufacture covers a period of some years, it is only within the past ten or fifteen years that production on a comparatively large scale has taken place. In the development of condensed and evaporated milk the object has been, as in the introduction of the powdered product, to process fresh milk so that a concentrated product is secured which will not deteriorate, which can be produced in seasons of heavy milk production and held for long periods of time, which can be shipped and handled with less difficulty and expense than whole milk, and which can be transported to those countries and climates where fresh milk is not or cannot be produced satisfactorily.

Two Processes in Use

Numerous patents on processes for making milk powder have been granted, but the principal commercial methods now in use are of two types: the spray process and the roller process. In the former process, the fluid milk is pasteurized and then sprayed into a current of heated air which results in the immediate absorption of the moisture in the milk. The powder falls in small particles, and is removed in this form, for packing. In the roller process, revolving drums are heated from the inside and the milk flows on to the surface in a thin sheet. The dried film or sheet is scraped off and ground or pulverized. By either of these methods of manufacture, a product consisting of the milk solids is produced which contains a moisture content often as low as 2 per cent.

Various Obstacles Prevent Development

Simple as the present processes may seem, the development of the powdered milk industry has met many obstacles. In the first place, commercial outlets, for a long time, were limited to those places where the powder could be sold at a price that made its use more economical than fresh milk, or where fresh milk could not be readily obtained. Unfortunately, in the latter places, milk is not extensively used in any form and considerable educational work still must be done to develop this dormant demand to its greatest possibilities.

In the United States, prices of fresh milk have remained too low in relation to the equivalent amount of milk powder to make the powder a strong competitor of fluid milk, especially for household use. There has been a very large increase in the demand for pow-

der, however, from bakers, confectioners and ice cream manufacturers, especially during warm weather when trouble is frequently experienced in securing adequate supplies of fresh milk of good keeping quality. Milk chocolate manufacturers have found milk powder particularly suited to their needs. Most of the milk powder used by bakers, ice cream and milk chocolate manufacturers is made from skimmed milk.

One of the greatest problems with which milk powder manufacturers have had to deal has been the tendency of whole milk powder to become rancid if held for any great length of time and its tendency to become lumpy when stored under relatively humid conditions. The development of rancidity has been more largely confined to powders containing butterfat, that is, whole milk powder and cream powder. Aside from the presence of butterfat, which is so susceptible to deterioration, milk powder is seldom given special consideration when held in warehouses or on retailers' shelves for long periods. Frequently the product is not cared for by users as it deserves. When kept under dry refrigeration, rancidity is reduced to a minimum.

Lumpiness has been considerably reduced by the use of heavier wooden barrels with paraffined liners, and metal containers which do not permit moisture to be taken up by the powder. In some of the earlier processes of manufacture, a powder of higher moisture content was produced, but present methods have taken into account the tendency to lumpiness. Powder that has caked is unsuitable for most purposes.

Advantages in Using Milk Powder

Although use of milk powder in the United States has been largely limited to manufacturers of food products, manufacturers of milk powder claim that it possesses many advantages for household use. The fresh milk from which the powder is made must be of very high quality in order to produce a satisfactory product, and must be produced near the factory and under favorable conditions. The process of manufacture of this powder includes pasteurization of the milk and sanitary conditions of handling. It is obvious, that the methods that must attend the production and handling of the fresh milk, in order that a suitable powder be turned out, are all in favor of the discriminating user. A further advantage pointed out is the fact that the powder can be bought in quantities and used when wanted, so there need never be a shortage of milk in the household.

The disadvantages to the housewife, aside from the price which may be somewhat higher than fresh milk, is the fact that some time is required in preparing the powder for use.

Export Demand Grows

Export trade in powdered milk in recent years has increased considerably. The 1921 exports amounted to 9,446,890 pounds, as compared with 3,142,039 pounds the previous year. During the first five months of 1922 exports of 3,787,457 pounds exceeded those of the same period in 1921 by over 1,700,000 pounds. The chief export buyers are Germany and England where domestic use of milk powder is apparently heavier than in the United States. In Germany, considerable quantities are used in relief work for feeding children. It is used with eggs and sugar in preparing a custard which is a satisfactory food. American milk powder is said to be far superior to the European product with which it comes into competition.

Exports of Milk Powder

(Export figures not available prior to 1920)

1920	3,142,039 lbs.
1921	9,446,890 lbs.
1922 (Jan. to May inc.)	3,787,457 lbs.

A Growing Industry

Some idea of the growth of the powdered milk industry may be gained from the accompanying table showing the production of milk powder in the United States. At the present time there are approximately fifty factories in the United States manufacturing milk powder in addition to some 25 or more factories producing buttermilk powder. The better grades of buttermilk powder are used principally in the manufacture of pancake flour and the poorer grades for stock and poultry feeding. The milk powder factories are located mostly in New York, Illinois, Wisconsin and California.

Production of Milk Powder in the United States

	Whole milk powder	Skimmed milk powder	Cream powder
1918..	4,005,663	26,202,406	620,886
1919..	9,042,236	34,945,416	607,190
1920..	10,334,000	41,893,000	309,000
1921..	4,242,471	38,545,718	129,706

The following are the principal manufacturers of powdered milk in the United States:

The Merrell-Soule Company, Syracuse, N. Y.

Dry Milk Company, 15 Park Row, New York.

Wisconsin Butter and Cheese Company, Elkhorn, Wis.

Wisconsin Dry Milk Company, 144 Oneida Street, Milwaukee, Wis.

The Ekenberg Company, Cortland, N. Y.

The California Central Creameries, 417 Market Street, San Francisco, Cal.

Ayer & McKinney, 39 South Water Street, Philadelphia, proprietors of Meridale Farms.

Foodstuffs Around the World

Hungry Hungarians Like Our Evaporated Milk—German Candy Factories Earning Fabulous Dividends—American Tinned Food Selling Well in Naples

Evaporated Milk Scores a Hit in Hungary

American evaporated milk has won the day in Hungary, says Consul Kemp of Budapest. Dr. Geza Dubsky, Ministerial Councilor of the Ministry of Commerce recently purchased several cans of unsweetened evaporated milk in Budapest after the departure of an American charity. So impressed was he of the quality and price of this milk that he has requested Consul Kemp to secure for him quotations on carload lots of this milk for the purpose of provisioning the employees of the various ministries through their cooperative organization. In view of the high cost of living in Budapest, especially for public employees, it is believed that evaporated milk will be much more economical than the dairy milk to be had in that city.

Germany Becoming a Candy Country

Germany has become a country of candy-eaters. The demand for candy to take the place of other foodstuffs which are too high to buy is so great that factories are working overtime and competition has virtually ceased. Dividends ranging from 200 to over 365 per cent indicate the profit in the manufacturing end of the business, Vice Consul Haven, Leipzig, informs the Department of Commerce. That it is the wage earner who is spending large amounts of money on this form of food is evidenced by the marked prevalence of chocolate and chocolate candies in the lower priced shops of both large and small towns. American chocolates and other candies, especially the hard candies so popular on the American market during the Christmas holidays, would find a ready sale in Germany, the consul says, provided the prices were not prohibitive and the exchange situation could be overcome.

American Canned Foods Selling Well in Naples, Italy

American canned foods are selling very well in Naples, Italy, and other large Italian cities, says a report from Consul Byington, Naples. The Italian import tariff on most articles is so high as to preclude the ready sale but in some lines this does not hold good. Practically all American canned foods could be advantageously placed. It is open to doubt as to whether or not any large purchases of some lines are to be expected from the Italian population but there seem to be enough Americans and English residents to make the lines profitable.

South Africans Have Also Learned to Like Sundaes

Ice cream sundaes are giving hot tea a cold time of it down in South Africa where the popular American dish is threatening a drive to upset the afternoon tea custom which set in after the defeat of the Boers, says Arthur A.

Hacker of the Johannesburg Consulate. However, most of the South Africans believe ice cream to be very injurious and it will take the proper kind of advertising to bring them around to the American's conception of the healthfulness of ice cream.

Why Tampico Gets No More Porterhouse

The best fresh meat sold in Tampico up to about two months ago was imported from the United States in refrigerator cars and steamers going regularly to that Mexican city, says Vice Consul Shaw in a report to the Department of Commerce. But all that is now history. The local slaughter house is a municipal concession, and the charge for killing a beef, is fifteen pesos, to which is added a number of "extras" bringing the total tax up to twenty-four pesos per carcass. Recently a slaughter house inspector was sent around to all the meat shops selling American beef to collect the killing tax, and the shopkeepers were informed that they would have to pay the killing tax whether the meat was killed in Tampico or Topeka. When the shopkeepers refused, the inspector closed their doors. The case has been taken to court, but in the meantime no American beef, mutton or pork is being sold in Tampico and the people are wrestling over steaks from half-fed Mexican cactus cattle.

Americans Freezing and Drying Eggs in China

One of the little-known industries which Americans ought to know more about is the Chinese business in dry and frozen eggs, tons of which products come into this country every year. The following description of one of the largest American factories in Shanghai has just been received by the Department of Commerce from F. H. K. Reis of the American consular service. The eggs used in this plant are obtained from five different provinces of China, the majority coming by rail and boat from the lower Yangtze Valley. As there are no poultry farms in China, the eggs come from small farmers who have from five to ten hens. The eggs are concentrated in 32 stations throughout this area and in from five to seven days from the time the egg is laid it is used in the factory. The eggs are first cooled and the ones with broken shells discarded. After a candling process the eggs are taken to a floor above and broken. As in candling, this is done entirely by women, each egg being handled separately and the work is done with remarkable rapidity. If an egg that has spoiled has slipped by the candle women it is caught here. From this point the eggs are either frozen or dried. If frozen, they are placed in tins varying in capacity from 31 to 35 pounds and removed to the cold storage room and frozen to about zero Fahrenheit. If the eggs are to be dried, they are placed

on a long circular belt in the drying room where all moisture is extracted, after which the powdered egg is placed in cans and sealed. About 1,000 people are employed at this factory and American ideas of sanitary toilet facilities, rest rooms, lunch rooms, etc., are maintained. Many of the employees carry their own lunch of rice, and before noon the factory attendants heat this up so that the workers are provided with hot food. Tea is provided free. Lectures are given to the female workers by the Chinese Y. W. C. A. on tuberculosis, danger from flies, rearing of better babies, etc.

"Hot Dogs" Come High in Germany

One of the chief topics of the day in Germany is the tremendous increase in meat and sausage prices, says Vice Consul John A. Scott, Dresden, in a report just received by the Department of Commerce. The consumer places the blame on the butchers, while the latter condemn the slaughter houses, and from here the high prices are passed on down to the farmer who states that it is the high cost of feed that forces him to demand a high price for his beef. Sausage prices are augmented by the greatly increased prices of gut, spices, etc. Beef, mutton, and pork have risen over 100 per cent in sixty days, while slaughter house fees have risen two hundred per cent. Meat which formerly sold for eighteen marks per kilo is today bringing two hundred and sixty marks.

Food Cards Likely to Be Restored in Germany

Strict government control of foods and issuance of wartime food cards is expected momentarily in Germany, according to Assistant Commercial Attache Breed, Berlin, in a report to the Department of Commerce. Officials of the Ministry of Food have made public announcement that rationing of bread, meat, and milk may be expected any day owing to the very poor outlook for winter food.

Corn Flakes Frighten Swedish Oatmeal Producers

Another typically American food is making such a "hit" abroad that it is competing seriously with native preparations, says Consul Sholes, Goteborg, in a report to the Department of Commerce, and in one country at least—Sweden—is being subjected to commercial persecution. Toasted corn flakes are the object attacked. The Goteborg Board of Health is publishing official statements in the newspapers alleging that rolled oats are superior to corn flakes in nourishing value and are considerably cheaper in cost. One article goes so far as to mention by name the American brand of toasted corn flakes which has caused so much anxiety on the part of the Swedish rolled oats producers.

Vinegar Made From Evaporated Apples Not "Apple Vinegar" Says Court

Federal Judge Westenhaver, Cleveland, Renders Important Decision in Douglas Packing Company Case

An important decision to prevent misbranding of vinegar was delivered November 1 when Judge D. C. Westenhaver, sitting in Federal Court in Cleveland, Ohio, condemned 95 barrels of "waste" vinegar labelled "apple cider vinegar" claimed and manufactured by the Douglas Packing Company, Fairport, N. Y.

The Government seized the vinegar which had been shipped through interstate commerce on the ground that it was misbranded "Excelsior brand apple cider vinegar made from selected apples" when as a matter of fact, it has been made, as the company admitted, from evaporated apples put through a special process.

The Government's attorneys admitted all the contentions raised by the manufacturer as to the quality of the Douglas company's product, permitted samples to be submitted to Judge Westenhaver and, in fact, conceded every point argued by the company's counsel with the exception of the argument that vinegar made from evaporated apples was entitled to the designation of "apple" or "cider" vinegar.

In condemning the Douglas Company's vinegar Judge Westenhaver wrote:

"Mr. Justice Day says 'The legislation against misbranding intended to make it possible that the consumer should know that an article purchased was what it purported to be; that it might be bought for what it really was and not upon misrepresentations as to character and quality.'

"Claimant's label does in my opinion tend to mislead and deceive the ordinary purchaser and user of vinegar. Cider is defined by Webster as 'the expressed juice of apples.' But the word 'expressed' is meant expelled or forced out. From time immemorial apple cider has been understood to mean the expressed juice of fresh apples and not of dried apples. Apple vinegar or apple cider vinegar likewise in the popular mind has from time immemorial been understood as meaning vinegar produced from apple cider thus defined. Claimant's label conveys the impression that this vinegar is made from that kind of apple cider and that this apple cider is made in the common and familiar way from fresh or undried apples. The mere fact that the words 'apple cider' and 'selected apples' are brought together in the same label, conveys unmistakably this impression and repels any other or different impression. Apple cider is a well known product. Apples are a well known fruit. Cider means nothing else to the ordinary mind than the expressed juice of fresh or undried apples. Apples mean nothing else to the ordinary mind than fresh and unevaporated apples. A merchant who advertises and offers apples for sale could not compel a purchaser to accept dried or evaporated apples. The latter are not apples as that word is understood in the trade or by a person of ordinary intelligence but are a manufactured product, an entirely different article. Nor in my opinion could a merchant who offers apple cider for sale, compel a purchaser to accept a liquid made from evaporated apples in the

manner above described, even though it does possess substantially the same chemical constituents and has substantially the same taste as the expressed juice of fresh apples. Claimant's label consequently misleads and deceives. It makes a statement with respect to an article of food which conveys the false notion that this article is vinegar made from the expressed juice of fresh apples.

" * * * The law was designed to prevent the ordinary purchaser from being deceived and misled as to what he is buying and therefore the test of misbranding is the effect of the label or statement upon the ordinary purchaser. A statement that an article is apple cider vinegar made from selected apples can convey no other idea to such a person in the present state of common knowledge than that the vinegar is made from the expressed juice of fresh apples and not by the manipulation of dried or evaporated apples. If it does and the ordinary purchaser is or may be thereby misled or deceived it is no answer to say that he gets a vinegar which is equally good. The object of the law is to let the purchaser know just what he is buying and let him decide whether he wants it or not. One may not take advantage of his prejudices or want of information to sell him something different from what he thinks he is buying.

"Upon authority, as well as upon principle it must be held that the charge of misbranding is sustained. The label does bear statements regarding the article and the ingredients or substance thereof which are false and misleading, and the vinegar must be held to be offered for sale under the distinctive name of another article as that name is popularly and commonly understood. Judgment of forfeiture and condemnation will be entered."

Calumet Baking Powder Co. to Enlarge Its Plant

The Calumet Baking Powder Company, Chicago, has purchased a site, 130 by 200 feet, adjoining its present plant on Fillmore Street, between Forty-first and Forty-second avenues, on which will be erected a \$300,000 addition next spring. The annex will be a five-story structure, the same height as the present building of the company and will cover 200 feet frontage, running back 110 feet. Added to the ground space of the present plant the company with the new addition completed will have a total frontage of 475 feet and a depth of 110 feet.

It is announced that the addition will house the advertising and printing departments of the Calumet Baking Powder Company, as well as a cafeteria, assembly hall, rest rooms and other branches of the welfare activities.

Mrs. Helen Harrington Downing, widely known as a lecturer on dietetics, cooking and domestic science, and until her present connection, director of the Department of Food Economics of Armour & Company, Chicago, is now in charge of the Home Economics Department of the Calumet Baking Powder Company.

Piggly Wiggly Stores in East in Financial Trouble

Failure of the Manhattan chain of Piggly Wiggly self-service stores, followed by the \$1,000,000 failure of the Piggly-Wiggly Eastern Corporation, which operated stores in Newark, N. J., and suburbs, does not seem to be regarded with much surprise in the food trade, which regards the venture more as a stock-selling development than a legitimate grocery chain. It is pointed out that while the theory of self-service may appeal to Southern and Western consumers, in which markets the Piggly Wiggly stores have flourished, conditions are not the same in the East.

Another factor is the high rent necessary to obtain the large space to lay out such a store and the additional fact that a self-service store is confined largely to package goods, while other chain stores can carry bulk goods and stock a large variety.

The various Piggly Wiggly companies which operate in different parts of the country are all separate organizations, which obtain the right to the name, information on operating methods, proper equipment, etc., from the Piggly Wiggly Corporation, which deals in the patents and copyrights and store fixtures.

Institute of American Meat Packers Make Appointments

The Institute of American Meat Packers has announced, through its president, Charles E. Herrick, that C. R. Moulton, Director of the Department of Agricultural Chemistry of the University of Missouri, has been appointed Director of the Bureau of Nutrition of the Institute's Department of Education and Research, and has accepted the position, effective January 1.

The Institute also announced the appointment of D. W. Martin of Chicago, as Director of the Bureau of Merchandising of the Department of Education and Research.

New Express Rates on Cake Ordered Cancelled

The change in schedules of the American Railway Express Company, which would have resulted in increased carrying charges on cake, have been ordered cancelled by the Interstate Commerce Commission in Docket No. 1601. Cancellation of this schedule must be effective on or before Dec. 15, 1922, according to the order of the commission.

British Imports of Foods Increase

As Great Britain is the most important market for American food products, the trend of the consumption of food in that country is of considerable interest to American exporters. Apparently British consumption of foodstuffs has much more nearly recovered than that of any other European country engaged in the war.

Thomas J. Meehan of Thomas J. Meehan & Co., Baltimore, Md., died Nov. 15. Mr. Meehan was the first president of the National Food Brokers Association, having been elected at the organization meeting of the association in May, 1904.

Corn Products Company Cited in Price Guarantee

Complaint to Federal Trade Commission Alleges that Practice Works out Unfairly for Competitors

Table sirups, such as Karo and other brands in common use, are involved in an inquiry pending before the Federal Trade Commission. This inquiry, which arose from members of the industry, has given the commission reason to believe that price guarantees on table sirups, as effected by the Corn Products Refining Company, New York, constitute unfair methods of competition. Therefore, as contemplated by statute, a formal complaint has issued, directed to the Corn Products Refining Company, and requiring answer in thirty days. After answer a date for hearing will be fixed.

The Corn Products Refining Company manufactures and sells both glucose and table sirups. Among its competitors are a number of manufacturers known in the trade as sirup mixers, who make sirups but do not manufacture glucose, purchasing their requirements of glucose from the Corn Products Refining Company, and competing only in the sale of table sirups. This is important in view of the fact that guarantee against decline in price is given by the Corn Products Refining Company on table sirups, a competitive product, but not on glucose, with respect to which there is no competition between the sirup mixing firms and the Corn Products Refining Company.

By reason of a dominant position in the industry, arising from financial strength and plant capacity, the Corn Products Refining Company is alleged to "make the market" on glucose and table sirups and that its competitors of necessity must follow its prices. The Corn Products Refining Company, the complaint recites, has a capital stock of \$80,000,000, and grinds 22,500,000 bushels of maize per annum, which is over one-half of the combined capacity of all glucose manufacturers in the United States. Its total maize grinding capacity is 45,000,000 bushels per annum. Its nearest competitor grinds 9,000,000 bushels of maize per year. As to the actual production of glucose, the Corn Products Refining Company frequently produces a greater quantity per annum than all other producers in the aggregate. As to table sirup sold, the company manufactures and markets a much greater quantity than any of its competitors.

Since 1912 a guarantee has been given on table sirups that if the selling price declines within a specific period after date due for payment, then the purchaser will be refunded the difference between the purchase price and the value of the goods unsold in the purchasers' possession at the time of the decline. This is arrived at by figuring the difference between the purchase price and the value of the goods on hand at the time of decline.

A six months' guarantee has been given by the Corn Products Refining Company on table sirups for the past year. The terms of payment are fixed three months after delivery with a price guarantee for a further period of three months. During this six months' guar-

antee, by reason of large financial resources, it is alleged that the Corn Products Refining Company makes substantial declines in the price of its sirup, these declines being made regardless of fluctuations in the market price of maize or advances made by the Corn Products company in the price of its glucose, and regardless of fluctuations in the actual cost of manufacturing sirups. The company's financial resources are such that, without suffering embarrassment, it has, in certain instances, paid more than \$1,000,000 per annum to make good its outstanding guarantees against decline in price.

It appears in the citation that on the other hand competing sirup mixers, because of their relatively small size and limited financial resources, and because of the Corn Products company's control of the market price of both glucose and table sirups, have not been able to make good similar guarantees without seriously impairing their working capital and business standing. The adoption of a price guarantee by the Corn Products Refining Company compels its competitors to do likewise, and if they do not guarantee, then to rebate their customers in all respects as though they had guaranteed the price. When rebates were refused, customers were lost.

Thus it is alleged that a guarantee against price decline for a period of six months on table sirups by a firm which dominates the market for table sirups, and for glucose which it does not guarantee against price decline, with the further fact that the same company, by reason of its financial strength and plant capacity, "makes the price" of these commodities, under all the circumstances taken together works for the elimination of competition in the table sirup industry and has a dangerous tendency to create a monopoly thereof in the hand of the Corn Products Refining Company.

The complaint of the Federal Trade Commission against the practice of the Corn Products Refining Company of guaranteeing against price decline in selling its products will evidently be vigorously opposed by the company. The charge that the Corn Products Refining Company guarantees its distributors, the wholesalers and jobbers, against price decline on Karo sirups, has evidently been filed on misinformation as to the facts existing in the table sirup and glucose trade, according to statements issued by E. T. Bedford, president and Frank H. Hall, counsel of the company. The statement of Mr. Hall defines the position of the company. He says:

"This guarantee was given by this company on all its package goods sold under its own labels when, in 1912, it discontinued the packing of the private buyer's label, which at that time constituted a large portion of its business. The company has not entered into competition for this business since that date.

"It establishes prices only for its own advertised products, the prices of which

are never lower than those of competing products made by other manufacturers. It is the minority manufacturer and seller of glucose, which, as a raw material sold in bulk direct to the consumer at comparatively small margins of profit in competition with sugar and other materials fluctuates in price more often and is not guaranteed against decline either by ourselves or any other manufacturer. The productive capacity for this product is more than twice the world's requirements. This aggressive competition of sirup, as charged, more properly is chargeable to other glucose manufacturers, who manufacture sirup and sell more directly in competition with the mixer in the packing of the private label.

"There is more than one glucose manufacturer whose capacity for producing glucose is equal to that of the requirements of all the sirup sold in the United States and there are other glucose manufacturers equipped with all the facilities we possess, having their own can plants, etc., who have sufficient capacity to supply all the requirements. As a matter of fact if none of the Corn Products plants were operating, the consumer, both for glucose and sirup, could be supplied with all requirements. Supply and demand makes prices. The lowest seller fixed them and our competitors have had the monopoly of that privilege.

Denies Price Control

"The Corn Products Refining Company controls neither the price of glucose nor of table sirups. The markets for both of these products are highly competitive. While it is true that the company has a larger capacity for producing glucose than any single one of its competitors the combined output of the competitors is considerably larger than that of the refining company. All of these competitors are substantial and aggressive.

"Our large foreign business and the diversity of products which we must make to meet the demands of our trade reduces our capacity for domestic supply of glucose and our records shows a constantly declining proportion of sales in the United States. In 1906 the refining company had practically 100 per cent of the domestic glucose business. At the present time we have approximately 35 per cent. Our competitors not only have increased in number, but have grown in size until they are now supplying 65 per cent of the glucose trade in the United States and any one of them has sufficient output to fix the market price at which glucose is sold.

"Table sirups are uniformly sold under a trade mark or brand and their price is determined more by the value of the brand than by the cost of manufacture. Almost every wholesale grocer in the United States has his own brand or brands of table sirups. For several years the Corn Products Refining Company was the principal manufacturer of these branded sirups for wholesale grocers, although there were then in existence a large number of sirup mixers who bought their glucose and also manufactured private brands for the grocers.

Tells of Competition

"In 1912 the refining company determined to manufacture only its own brand of table sirup—Karo—and voluntarily left to the sirup mixers all the business of manufacturing private brands for wholesale grocers. Suppose-

quently other glucose manufacturers went into the sirup business and packed private brands in competition with the mixers. These glucose manufacturers having their own can plants and producing their own glucose, possessed greater economic facilities than the mixers and their competition has been very severe.

"In some instances such glucose manufacturers supply glucose to the mixers, and any one of them has sufficient output to supply glucose for the entire trade in mixed table sirups in the United States. While the refining company sells glucose at the lowest market price to all of its customers, it sells practically no glucose to the mixing trade except to blenders of molasses and those who distribute their products direct to the retailer.

"It is quite true, as has been stated by the president of the company, that the reports of sales of glucose and mixed sirups filed with the Department of Commerce and Labor show that if all our company's plants were closed down there would still be ample production of glucose and mixed sirups for all requirements.

"As the refining company has expended a very large amount of money in advertising Karo sirups, which are distributed through wholesale grocers and jobbers, it has to meet the competition

of the private brands of sirup owned by its own distributors and manufactured by the refining company's competitors.

Keeps Dealers Supplied

"In the interest of having Karo on the shelves of the distributors in conjunction with the company's advertising and also getting the sirup to the consumer at the lowest price, consistent with a fair margin of profit, the company endeavors to have its distributors at all times fully stocked and purchase in carload quantities, thereby saving freight and reducing cost.

"For many years wholesale grocers and jobbers have been accustomed to buying trade marked articles of merchandise from the manufacturers under a price guarantee. This custom has grown up because the manufacturer of the trade marked articles can reduce the price on his own specialty in order to stimulate business.

"The wholesaler and jobber naturally demand protection against the manufacturers' decline in price.

"The Corn Products Refining Company has but followed this general custom and believes it is a reasonable and fair practice in the interest of the consumer. We are informed that many other manufacturers also give a price guarantee."

Western Cannery and Wholesale Grocers Agree on Pro Rata Deliveries

One of the noteworthy features of the Western Cannery Association semi-annual convention in Chicago, Nov. 16 and 17, was the announcement of definite acceptance by the National Wholesale Grocers' Association and the American Wholesale Grocers' Association of the principle of pro rata deliveries. The convention approved a form of contract embodying an agreement between the Western Cannery Association and the two national wholesalers' associations, providing for pro rata delivery in case of crop damage, fire, flood, strike or other causes beyond the sellers' control. Conventions of the Illinois Cannery Association and the National Canned Foods Week Committee were held in Chicago at the same time.

In his address to the convention, President Royal F. Clark, Beaver Dam, Wis., said: "Can the cost of production be lowered in 1923? Unless there is a radical change within the next few weeks, the answer must be 'no.' Are present costs too high? As an individual canner, my answer would be 'yes.' I believe the canner put forth a tremendous effort to lower his costs the past season but found it impossible to do so. He now finds certain items quoted higher and none lower. We cannot and should not expect any reduction by the farmer for the raw product. I believe we should expect a reduction in cans. I find that the present duty on tin plates is 1 cent per pound. The former duty under the Underwood law of 1913 was 15 per cent and under the Payne-Aldrich law of 1919 was 1.2 cents per pound.

"Labor has received a slight cut.

Freight charges have been reduced and there should be a strenuous effort on the part of the can makers to reduce the price of tin cans lest we reach the point where cans are too expensive to be used as food containers."

Controversy With Food Brokers

William C. Leitsch, Columbus, Wis., who spoke on "Where Is the Weak Link?" created somewhat of a stir when he called upon the National Food Brokers' Association to "do a little house-cleaning." "I want them; I think we need them; they are good go-betweens," he said. But, "they should keep us informed. They should keep the jobber informed, and study the problems of the canner, know what the acreage is, what is being produced, what direction it is going, whether certain markets are being filled up; whether the poor growers in Wisconsin are dumping their stuff in Chicago and demoralizing the market, or helping them to develop it. That is the work of the efficient, honest broker, but to send men out to bear the market, to send out false reports, to try to cut down your price to below a living profit, that is dishonest practice; and they can help through their association, and that is what they are for.

"The go-between the canner, the small units of production and the large business man of vision should be an intelligent, honest, capable go-between, and if he is not, there is only one thing we are going to do, boys, we are going to organize some selling agency through which we can make intelligent distribution, and assure the canner who is taking a long chance in production that he is going to make a fair profit, and if they do not behave, we will do that, and we will just wipe them up."

A reply for the brokers was made by James L. Ford, Jr., president of the National Food Brokers' Association. He said in part:

"I agree with Mr. Leitsch that there are many evils to overcome, not only in our own business. I do not know whether he mentioned the evils in your business, but I will say this, while I am on the subject, and that is that I believe the brokers of the country go further in their effort to correct the evils in their own membership than does your association or does the buyers association of this country. We will go further in policing our membership than you do, or I think than do the Wholesale Grocers Association. We recognize that the brokerage business is a personal business, and therefore, it is exceedingly important that the personnel should be kept clean, and the unclean one does as much damage to the clean as he does to himself, for it is a reflection upon our whole industry.

"What we object to is the wholesale condemnation of the entire brokerage fraternity because of the sins of a few. Too often have we heard this gospel spread upon the brokers as a whole, when it should be confined to certain individual brokers. You might as well condemn the canning industry, or the members of your association because some canner in the country does not pay his swell bills. You cannot describe the acts of certain individuals and condemn the industry in accordance with those particular acts. It is unfair, and I think you will agree with me, and far be it from me, as I said before, to say that everyone in our membership is 100 per cent perfect; but if there is anything wrong with them, gentlemen, the thing to do is to come to our association with the word.

"I am delighted that you have appointed a conference committee, one with which we can sit down and talk over things and arrive at a proper solution.

"I was dumbfounded when I heard that one very high in your official life had gone to the Federal Trade Commission regarding certain evils that he claimed originated in the brokerage business. Why? Why not come to us? We are a part of your business; we are all in one business, and we are just as anxious as you are to work out the problems. We will meet you heart and soul, and we will go as far as anybody can. Why go to the Federal Trade Commission?"

Resolution Endorses the Broker

This controversy between Mr. Leitsch and Mr. Ford, Jr., resulted in the convention adopting a resolution which called upon the members to establish sales representation through the National Food Brokers' Association, as a proper agency and as a recognition that through the two associations a direct and effective control of trade abuses may be established.

Among other speakers at the convention were: E. B. Cosgrove, Le Sueur, Minn., chairman of the pea section; J. W. McCall, Gibson Canning Co., Gibson City, Ill.; James Moore, president of the National Cannery Association; Ogden Sells, former president of the Canning Machinery and Supplies Association; C. G. Woodbury, director of the raw products research bureau, National Cannery Association.

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Association and Convention Calendar

American Association Creamery Butter Manufacturers. Continental and Commercial Bank Building, Chicago. Secretary, George L. McKay.

American Bakers' Association. 1135 Fullerton ave., Chicago. Business manager, H. E. Barnard.

American Chemical Society. 1709 G st., N. W., Washington, D. C. Secretary, Charles L. Parsons.

American Corn Millers' Federation. 332 South La Salle street, Chicago. Secretary, T. M. Chivington.

American Dietetic Association. Secretary, Breta Luther, Children's Hospital, Boston, Mass.

American Macaroni Manufacturers' Association. 26 Front street, Brooklyn. Secretary, Edward Z. Vermeylen.

American Manufacturers' Association of Products from Corn. 208 South La Salle street, Chicago. Annual meeting early in the year. Secretary, Dr. W. P. Cutler.

American Specialty Manufacturers' Association. 53 Park place, New York. Secretary, H. F. Thunhorst.

Association of Operative Millers. Postal Telegraph Building, Kansas City, Mo. Next convention, June 4 to 9, 1923. Secretary, M. P. Dillon.

Biscuit and Cracker Manufacturers' Association of America. 90 West Broadway, New York. Convention May, 1923. Secretary, R. T. Stokes.

Flavoring Extract Manufacturers' Association of the United States. Date of next convention to be set in January. Secretary Gordon M. Day, Day-Bergwall Co., Milwaukee, Wis.

Institute of American Meat Packers. 509 South Wabash avenue, Chicago. Secretary, W. W. Woods.

National Coffee Roasters Association. 64 Water street, New York. Manager, Felix Coste.

National Association of Ice Cream Manufacturers. 155 North Clark street, Chicago. Secretary, N. Lowenstein.

National Association of Retail Grocers. 416 R. A. Long Building, Kansas City, Mo. Next annual convention at St. Paul, Minn., June 23 to 28, 1923. Secretary, H. C. Balsiger.

National Canners' Association. 1739 H street, N. W., Washington, D. C. Next convention at Atlantic City, N. J., the week of January 22, 1923. Secretary, Frank E. Gorrell.

National Confectioners' Association. 11 West Washington street, Chicago. Convention at Atlantic City, May 23, 24 and 25, 1923. Secretary, Walter C. Hughes.

National Dairy Council. 910 South Michigan avenue, Chicago, Ill. Annual meeting, Dec. 7. Chicago. Secretary, M. O. Maughan.

National Dairy Union. 630 Louisiana avenue, Washington, D. C. Secretary, A. M. Loomis.

National Food Brokers Association. 326 West Madison street, Chicago. Convention to be held simultaneously with conventions of National Canners' Association and the Canning Machinery and Supplies Association, at Atlantic City, N. J., the week of January 22, 1923. Secretary, Paul Fishback.

National Macaroni Manufacturers' Association. Braidwood, Ill. Next meeting, June, 1923. Secretary, M. J. Donna.

National Milk Producers' Federation. 1731 I street, N. W., Washington, D. C. Secretary, Charles W. Holman.

National Paper Box Manufacturers' Association. 112 North Broad street, Philadelphia. Annual convention, May 9 to 11, 1923, Claypool Hotel, Indianapolis, Ind. Secretary, William W. Baird.

National Pickle Packers' Association. 326 West Madison street, Chicago. Meets with National Canners' Association at Atlantic City, January 22, 1923. Secretary, F. A. Vickers.

Rice Millers' Association. 609 Maison Blanche Annex, New Orleans, La. Convention, May 31, 1923. Secretary, F. B. Wise.

groups will have under consideration wood containers, such as boxes, buckets, hampers and crates, another will deal with metal containers, such as cans and barrels, a third will consider standardization of paper board and fibre board cans and boxes, and a fourth will have under discussion glass containers.

Among those to whom invitations have been sent include the following:

American Wholesale Grocers Association, National Wholesale Grocers Association, National Retail Grocers Association, National Chain Store Grocers Association, American Hotel Association Research Bureau, American Warehouse Men's Association, National Restaurant Association, Container Club of America, National League of Commission Merchants.

United States Chamber of Commerce, American Specialty Manufacturers Association, American Railway Association, American Railway Express Co., Rankin Shook & Wooden Box Manufacturers Association, National Paper Box Manufacturers' Association, National Association of Corrugated Fibre Box Manufacturers, Cigar Manufacturers Association of America, National Association of Box Manufacturers, National Confectioners Association of United States.

National Pickle Packers Association, National Manufacturers Association, Stove Polish Manufacturers Association, Steel Barrel Manufacturers Association, National Preservers & Fruit Products Association, Metal Cap Association, Eastern Soda Water Bottlers Association, National Mineral Water & Beverage Association, Olive Oil Association of America, National Bottle Manufacturers Association, Flavoring Extracts Manufacturers Association, Glass Containers Association of America, National Association of Manufacturers of Pressed & Blown Glassware, National Sirup & Molasses Association, California Packing Corporation.

American Spice Trade Association, Millers National Federation, National Coffee Roasters Association, National Association of Macaroni & Noodle Manufacturers of America, United States Sugar Manufacturers Association, National Paper Box Manufacturers Association, Western Paper Box Manufacturers Association, Coffee Growers Association, Tea Association of United States, Folding Box Manufacturers Association, National Biscuit & Cracker Manufacturers Association, National Confectioners Association of United States.

National Association of Brokers in Refined Sugar, Grocery Bag Manufacturers Service Bureau, American Tack Manufacturers Association, Biscuit & Cracker Manufacturers Association of America and American Can Company.

Cleveland Food Show to Be Held in February

The Mid-Winter National Food Show, will be held in the new public auditorium of Cleveland Feb. 4 to 10, 1923, under the direction of the Cleveland Retail Grocers' Association, 1827 East Fifty-fifth Street, Cleveland, and the Food Show Department of the National Association of Retail Grocers, 416 R. A. Long Building, Kansas City, Mo.

The object of the show is to demonstrate food products to the consumers of the territory and to develop the more enthusiastic cooperation of the retail distributor. All manufacturers of food products are invited by the two associations sponsoring the exhibition to be represented.

Secretary Hoover Calls Conference to Discuss Standardizing Food Containers

Division of Simplified Practice, New Bureau of Department of Commerce, Will Conduct Meeting January 15

A conference of trade association representatives has been called by Secretary of Commerce Hoover, to meet in Washington, the week of January 15, to discuss the question of standardization of food products containers. The conference will be held under the auspices of the Division of Simplified Practice, established by Secretary Hoover to serve as a centralizing agency in bringing producers, distributors and users together and to support the recommendations of these interests when they mutually agree upon simplifications of benefit to all concerned.

In calling this conference, the Division of Simplified Practice points out that agreements on simplification will assist in decreasing stocks, production costs, selling expenses, misunderstandings and all costs to the user, while such agreements will help to increase turnover, stability of employment, promptness of delivery, quality of the product, foreign commerce and profit to the producer, distributor and user. "Frequently," says

the division, "a manufacturer, or group of manufacturers would like to eliminate excess varieties but feels that the producer cannot properly approach either the distributors or the users of these articles with such a proposal. In other lines it is the distributors or users who would like to bring about reduction of variety if they could bring about an agreement."

Invitations have been sent out to about 60 different associations and individuals, which include producers, distributors and users of food containers of all kinds. Representative associations in the field, manufacturers of containers, packing associations, wholesale distributors, retail associations, railway associations, consuming interests, purchasing agents' associations and Government departments, such as the Army, Navy and Department of Agriculture, have been invited to send representatives. Officials of the Division of Simplified Practice are confident that the conference will prove successful.

Present plans are to divide the conference into four groups. One of these

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Hearing on Oleomargarine Regulations

Bureau of Internal Revenue Hears Manufacturers on Proposed Revision of Laws Governing its Sales

The Bureau of Internal Revenue is making a revision of its oleomargarine regulations which are known as Regulations No. 9. A tentative revision of the regulations was prepared and made public about two months ago. A public hearing on the same was held by the bureau on November 20 and 21 at which time the oleomargarine manufacturers and the dairy interests appeared and submitted such objections and approval of them as the facts seemed to warrant.

The oleomargarine manufacturers are of the opinion that the proposed regulations will greatly simplify their oleomargarine bookkeeping which hitherto has been a considerable burden upon them. The provision of the proposed regulations prohibiting the shipment of colored capsules in original packages of oleomargarine was withdrawn by the bureau at the beginning of the hearing. The bureau also indicated that it had decided to modify or to delete certain other ones of the regulations to which the oleomargarine industry offered objections.

One of the paragraphs of the regulations to which objection was made was as follows:

"The use of such words as 'butter,' 'butterine,' 'nut butter,' 'creamery,' 'dairy,' or 'margarin,' upon an original package of oleomargarine is hereby prohibited notwithstanding such word or words form a part of the manufacturer's name, or appear in connection with the word 'oleomargarine.'"

Another provision of the proposed regulations makes the above provision apply to cartons or other wrappers of prints of oleomargarine. Words that are prohibited from appearing on original packages and cartons or other wrappers of prints of margarin would in good logic be prohibited from appearing on advertising matter inside of such containers or wrappers.

A spokesman for the margarin says:

"The Federal oleomargarine law requires oleomargarine to be labeled 'oleomargarine.' Everybody in the oleomargarine business labels his product 'oleomargarine.' The letters of the word oleomargarine must be at least one-fourth of an inch square. The word must be plain and conspicuous. There must not be anything on the label to obscure it or cover it up or hide it. Everybody in the oleomargarine business is in favor of the law and labels his product accordingly. No manufacturer wants to change it or attempts to change it or has asked the Revenue Bureau for permission to change it. Every member of the Institute of Margarin Manufacturers was put on record at the hearing as being opposed, not only to the use of the dairy terms referred to above, but to the use of any other terms, words, phrases, or designs in a way that is false or misleading in any particular. The

oleomargarine industry is at a loss, therefore, to understand why such a provision was ever incorporated in the proposed Regulations.

"The oleomargarine industry is opposed to any regulation that has the appearance or that might be interpreted as prohibiting it from telling what oleomargarine is. There are several million pounds of milk and butter used every year in the manufacture of oleomargarine in America. There does not appear to be any good reason why the oleomargarine industry should be prohibited from making a reference to this fact in connection with packages of oleomargarine either on the outside or inside of the packages. Those who have been misrepresenting oleomargarine, its food value and its composition, may be interested in prohibiting the industry from telling the public what oleomargarine is.

"The laws of several States require the manufacturers of oleomargarine to name the ingredients of it on the label. When butter is an ingredient of oleomargarine, as it frequently is, the state law and the proposed regulation of the Bureau of Internal Revenue are in conflict.

"The oleomargarine industry has seen fit to put advertising matter inside of packages of margarin relating to its composition and food value. For purposes of comparison, a table of the digestibility and energy value of oleomargarine, butter, and other fatty food-stuffs was a part of it. There appears to be no good reason why such a practice should be prohibited. The enemies of oleomargarine doubtless do not want the margarin industry to be permitted to say that the digestibility and energy value of oleomargarine is equal to that of butter. They doubtless do not want anyone to be permitted to compare oleomargarine with butter.

"So far as the use of the terms butter, margarin, and butterine in firm or corporate names is concerned, the regulation does not appear to be sound. In the first place, no food and drug control agency in the world has ever included any corporate name or any part thereof in any charge of the misbranding of any article of food or drug. The corporate name is not the name of the product, especially so when the product is sold under its own distinctive name as oleomargarine is sold.

"The word 'margarin' is a synonym of the word 'oleomargarine.' If it means anything at all to a consumer, it means oleomargarine. If it does not mean oleomargarine to a consumer, it does not mean anything; for it has never been applied to any other article of food. The prohibition of its use in a firm name therefore appears to be unwarranted.

"The word 'butterine' certainly does not mean butter and its use in a corporate name on a product that is plainly

and conspicuously labeled 'oleomargarine' would not seem to mislead anybody. Besides, the word 'butterine' can even be used, according to the laws of many states, in place of the word oleomargarine as the name of the product; but, as has been previously stated, the oleomargarine industry does not want the privilege of such a use of it.

"The word butter in a corporate name of a company that manufactures and handles butter as well as oleomargarine, and that manufactured and handled butter twenty years or more before it handled oleomargarine, could not be held to be deceptive. It certainly would not deceive anybody in connection with a product plainly and conspicuously labeled 'oleomargarine.'

"The fact that there is a Federal law and a state law of every state in the Union, as well as city laws, prohibiting the misbranding of all articles of food, would appear to make the issuance of such a regulation as the one proposed by the Bureau of Internal Revenue entirely unnecessary. The unqualified prohibition of the use of any word or phrase descriptive of any ingredient used in the manufacture of oleomargarine is certainly unauthorized by law. Even the oleomargarine law itself refers to 'butter' by name. It would be peculiar indeed for an administrative regulation to prohibit, without qualification, any reference to 'butter' by an oleomargarine manufacturer."

The above statements are in substance what the Institute of Margarin Manufacturers submitted to the Bureau of Internal Revenue for its consideration in connection with the proposed regulation quoted above.

The dairy and butter interests simply voiced their approval without argument of all of the proposed regulations as originally drawn and asked for additional regulations that would hurt the oleomargarine industry.

The following persons were present at the hearing:

E. P. Kelly, President of the Institute of Margarin Manufacturers, Columbus, O.; J. S. Abbott, Secretary, Institute of Margarin Manufacturers, Washington, D. C.; B. S. Pearsall, B. S. Pearsall Butter Co., Elgin, Ill.; Geo. T. Moxley, Wm. J. Moxley, Inc., Chicago; T. H. Eckerson, Eckerson Company, Jersey City, N. J.; N. F. O'Dea, Baltimore Butterine Company, Baltimore, Md.; J. D. Armstrong, Baltimore Butterine Company, Baltimore, Md.; H. H. Kamsler, Armour & Company, Chicago; W. C. Kirk, Armour & Company, Chicago; Mr. Griffith, Armour & Company, New York; G. M. Lawrence, Swift & Company, Chicago; J. M. Wadd, Wilson & Company, Chicago; E. C. Walraven, Troco Nut Butter Company, Chicago; C. S. Mifflin, Ed. S. Vail Butterine Company, Chicago; E. A. Stevenson, E. A. Stevenson & Company, Inc., New York; D. A. Blanton, Blanton Manufacturing Company, St. Louis, Mo.; Wm. M. Steele, John F. Jelke Company, Chicago; A. M. Davis, The Nucoa Company, New York; Howard J. Rohan, The Ohio Butterine Company, Cincinnati, Ohio; Mr. Adams, Nucoa Company, New York.

DECEMBER 1922

The American Food Journal

The National Magazine of the Food Trades



In This Issue

Specialty Manufacturers Adopt Code of Ethics
and Oppose State Interference With Food
Products Which Comply With Federal
Regulations

The Place of the Laboratory Man in the
World of Food Economics

By Dr. E. V. McCOLLUM

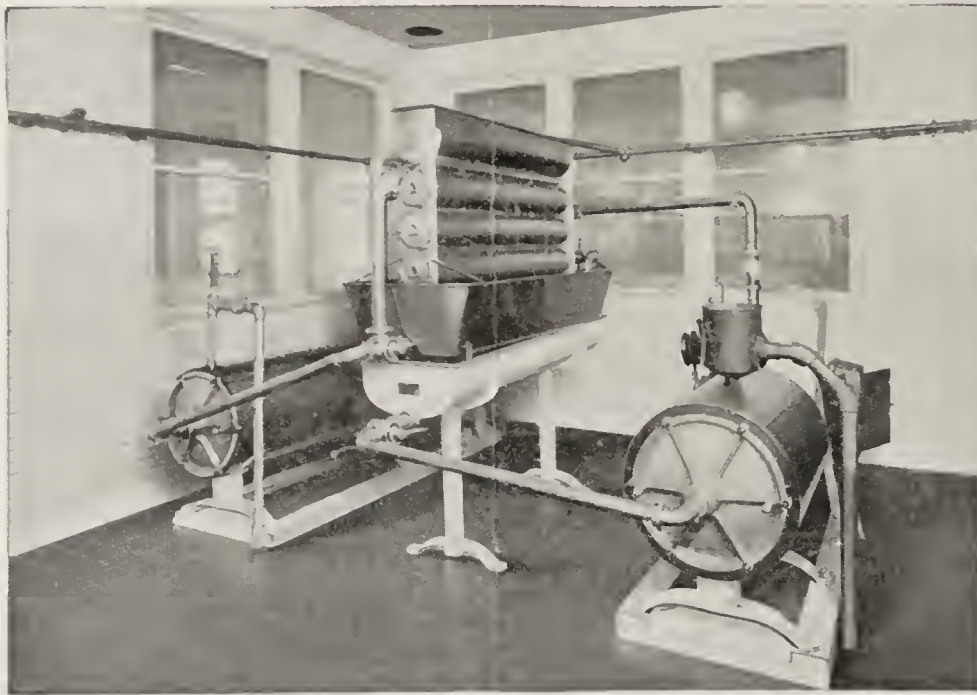
What the Milk Industry Has Accomplished

By WINIFRED STUART GIBBS

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and Its Application to the Dietary

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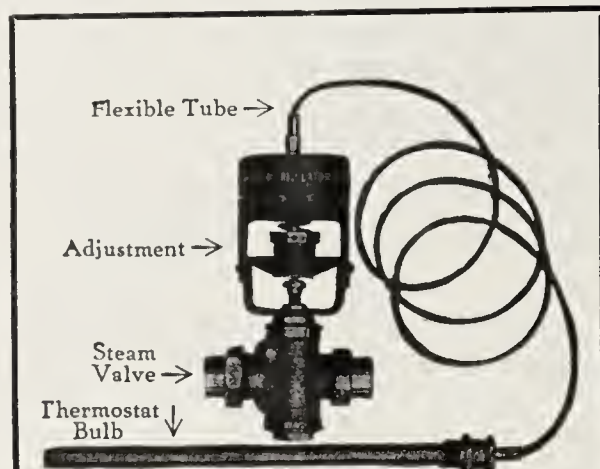
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Palmer, McElwain & Cole
Incorporated
Brokers

FOOD PRODUCTS

Personal Sales Service to the New
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Muller Brokerage Company
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Operating Our Own Warehouse

Write for special rates.

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We do not sell for our account.

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CANNED GOODS, DRIED FRUITS
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35 South Front Street
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GRIFFITH-DURNEY CO.
Distributors

Canned Foods
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Leading Salmon Handlers

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E. PRITCHARD

Packer and Manufacturer
of the Finest

"EDDYS"

BRAND

Canned Food, Jellies, Preserves
Plum Pudding, Sauces, Table Delicacies
and

PRIDE OF THE FARM

TOMATO CATSUP

Bridgeton, New Jersey

and

331 Spring Street, New York, N. Y.



Mary Jane has decided to "play boat" with a Carton of Coffee on the way home from the Grocery.

No harm done in this particular instance for the carton is protected with K-V-P Waxed Karton Sealing Paper.

Have you tried it out?

Kalamazoo Vegetable Parchment Co.

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PET MILK is scientifically clean

Sterilized in air-tight containers, Pet Milk is pure cows' milk that is absolutely sterile—scientifically clean. Nothing is removed except water. Pet contains no added sugar. In fact, nothing is added. Uniformly rich and wholesome, Pet satisfies perfectly every need for milk and cream.

THE HELVETIA COMPANY
(Originators of Evaporated Milk)
General Offices, St. Louis
Milk at its Best

Candles on the tree of Good Will

In a season which is, by popular consent, dedicated to the kiddies, the older generation finds itself decidedly limited in what it can do and say and think about. Perhaps Christmas looms a little larger in a small community like this one at Canajoharie. Perhaps the snow is a little whiter here—the fir trees a little nearer—the reindeer a bit more certain. Christmas in the Mohawk Valley seems to be a time which weakens the old saying that "business is business". Nevertheless there is much for modern Business to learn from the success of the Christmas season, for it is the greatest institution of Good Will the world has ever known.

And if the youngsters *must* overeat, here's hoping it's pure food and wholesome! Thank you; the same to you!

Beech-Nut

"Foods and Confections of Finest Flavor"

BEECH-NUT PACKING COMPANY
Canajoharie - - New York

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For Successful Home Baking

the right choice of baking powder is essential—a baking powder that, in addition to raising the dough in just the proper manner, adds nutritive value to the food. When you use

RUMFORD

“THE WHOLESOME”

BAKING POWDER

everything you bake will be more wholesome, more delicate in texture, more delicious in taste than ever before *Rumford* always produces the same perfect results at reasonable cost.

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N. Y. Vinegar Sales Dept.

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When everybody thinks of good, delicious foods—

Domino

Package Sugars

Granulated, Tablet, Powdered, Confectioners and Brown.

Golden Syrup

Brings the popular flavor of sweet sugar cane in its most delightful form.

Sugar-Honey

A delicious combination of pure honey and the best invert sugar.

Cinnamon and Sugar

Domino Granulated Sugar mixed with best powdered cinnamon.

Molasses

An old-time favorite in a new and more delicious form.

The happy Christmas season is the time for "extra-special" good things to eat in every one's home. And it is also a time when a pleasing variety of products is in most intensive demand.

The complete Domino line of cane sugar products contains the best sugar-foods of all kinds. There are cane sugars for every purpose, packed clean and protected in sturdy cartons and strong cotton bags: Domino Syrup and Molasses for delightful spreads and to use as delicious flavors for cooking; Cinnamon and Sugar for sprinkling those holiday pies and puddings, and Sugar-Honey for a sweet spread, cooking and candy making.

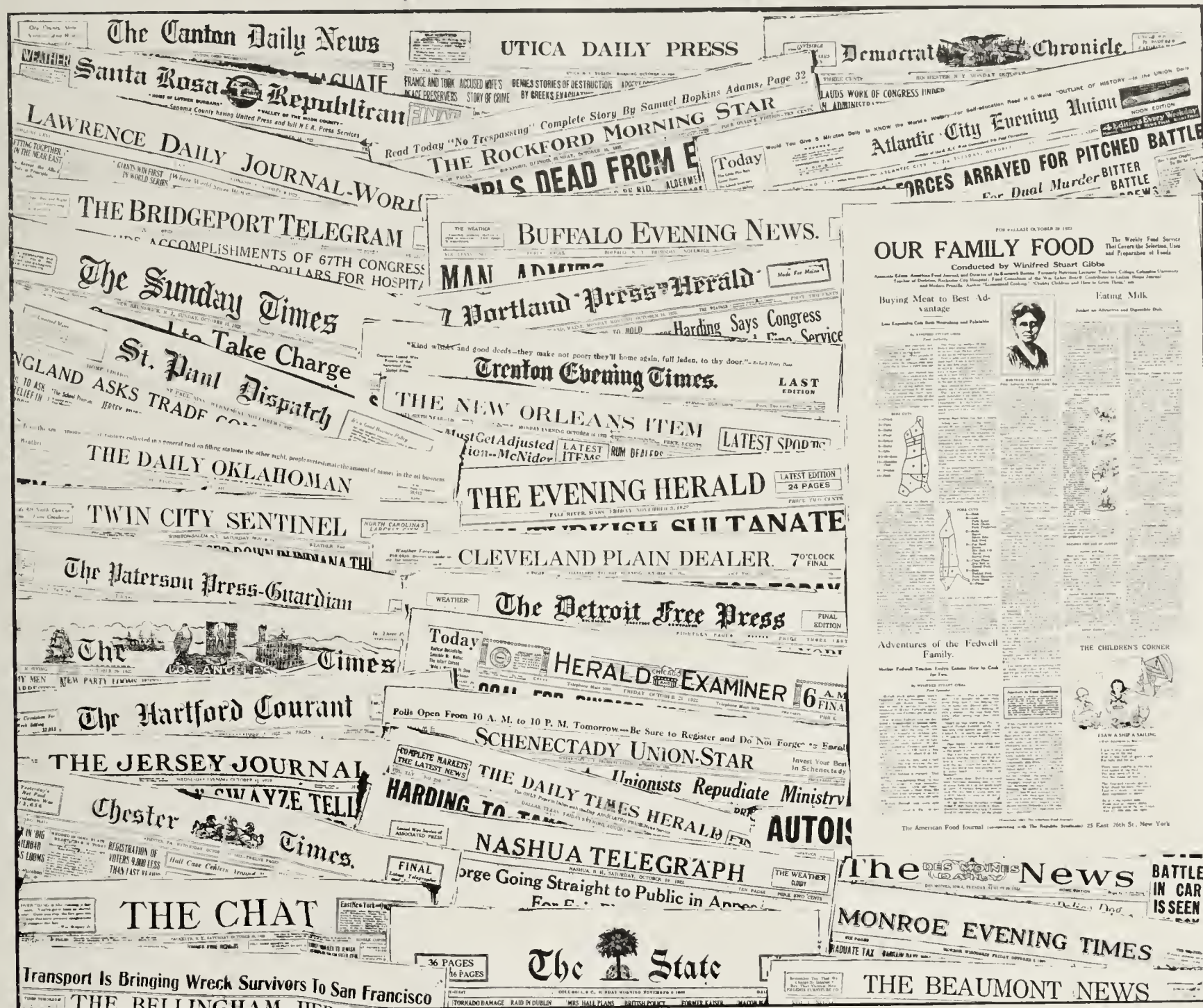
All Domino Cane Sugar Products are sold in convenient packages. They are weighed, packed and sealed by machine, protected from dirt, dust and handling.

American Sugar Refining Company

"Sweeten it with Domino"

Granulated, Tablet, Powdered, Confectioners, Brown; Golden Syrup; Cinnamon and Sugar; Sugar-Honey; Molasses

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Columbia, S. C., State
Chester, Pa., Times
Chicago, Ill., Herald-Examiner
Cleveland, Ohio, Plain Dealer

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Los Angeles, Cal., Times
Monroe, Wis., Evening Times
Nashua, N. H., Telegraph
New Brunswick, N. J., Home News
New Orleans, La., Item

Oklahoma City, Okla., Oklahoman
Paterson, N. J., Press-Guardian
Portland, Me., Press-Herald
Rochester, N. Y., Democrat & Chronicle
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St. Paul, Minn., Dispatch
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Be sure that these papers are included in your 1922-3 advertising campaign. Sample release and more information on how these papers give extra service to Food Manufacturers on request.

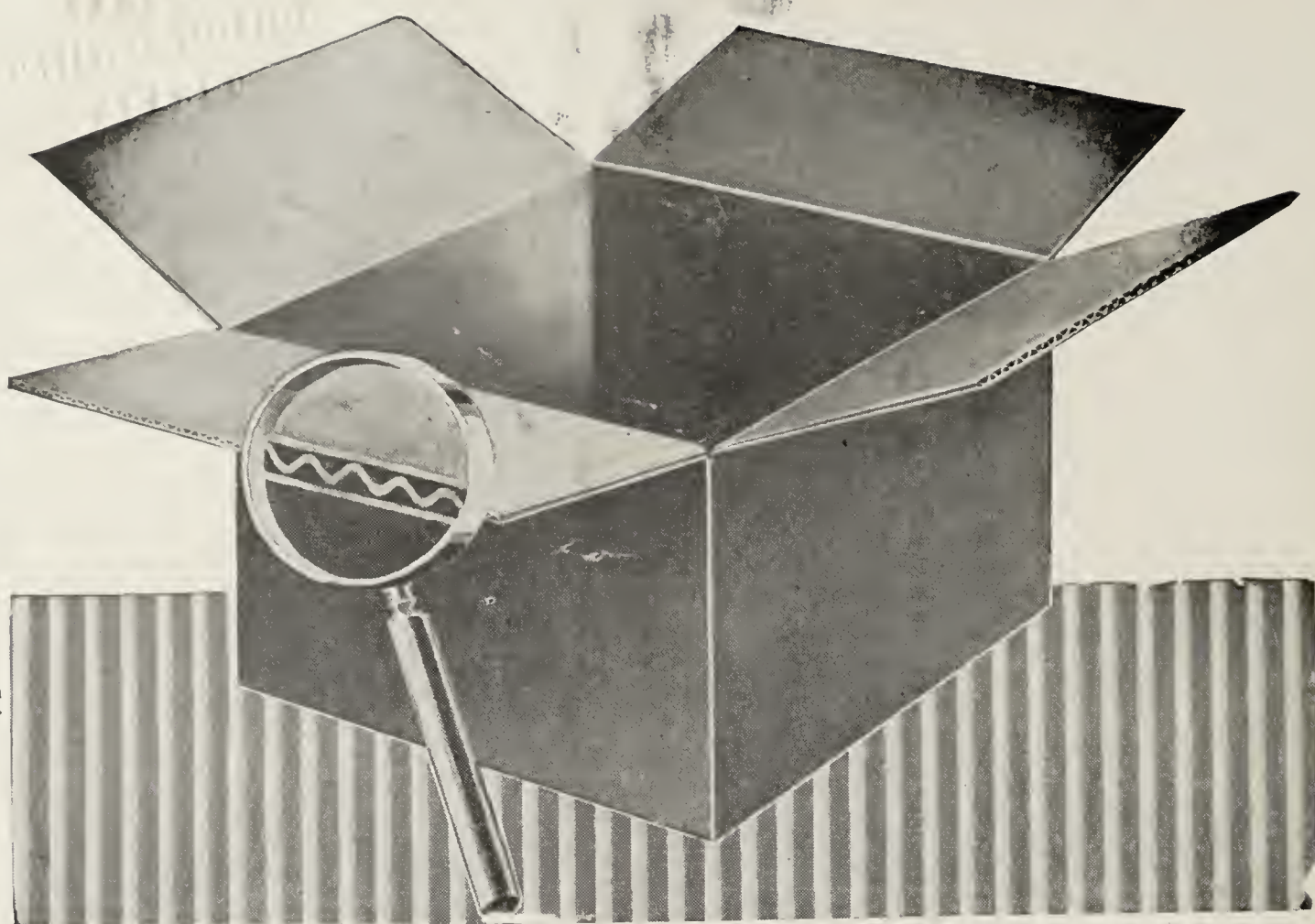
THE AMERICAN FOOD JOURNAL

Weekly Food Service to Newspapers

25 East 26th Street

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The Republic Syndicate Cooperating



This H & D Standard Canned Goods Box Carries Shipments Safely and at Lowest Possible Cost

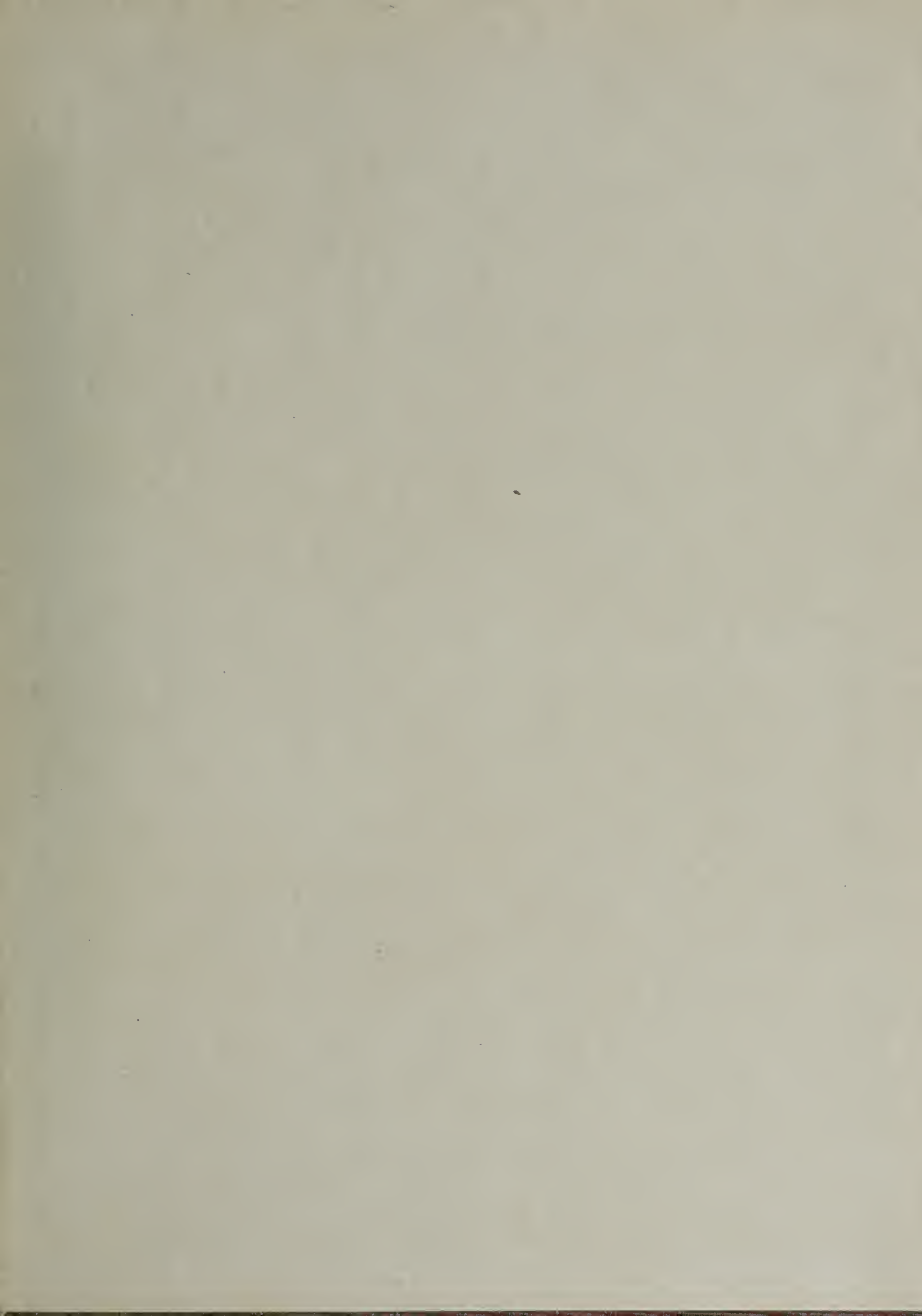
THIS H & D Standard Canned Goods Box is built *especially for the canned goods trade*—not an ordinary fibre container but a sturdy shipping box that will safely carry the weight of a canned goods shipment. It is too tough to burst or break open and too rigid to permit its contents to roll and wedge. It is the lowest priced shipping case you can buy that will carry your goods safely and deliver them unscratched, undented and intact at destination.

Write us today for samples and prices, mentioning quantity required, size and number of cans to the package. A trial order will convince you of the economy and security of these better boxes.

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